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ABSTRACT

The sequence of 10 units is designed for use with an instructor in architectural drafting, and is also keyed to other texts. Each unit contains several task packages specifying prerequisites, rationale for learning, objectives, learning activities to be supervised by the instructor, and learning practice. The units cover: architectural lettering and timesaving devices, planning the house for everyday living, drawing a residential floor plan, foundation and footing details, wall and related detailed sections, elevation views, electrical plans, plumbing plans, mechanical plan, and schedules. (BP)

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RESEARCH PROJECT

SANFORD CENTRAL HIGH SCHOOL

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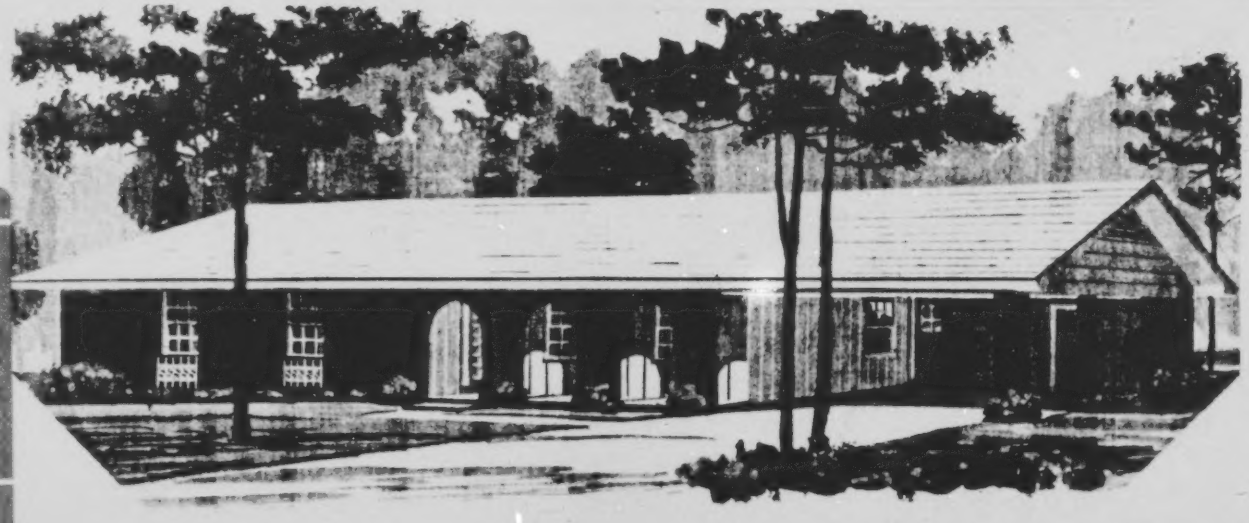
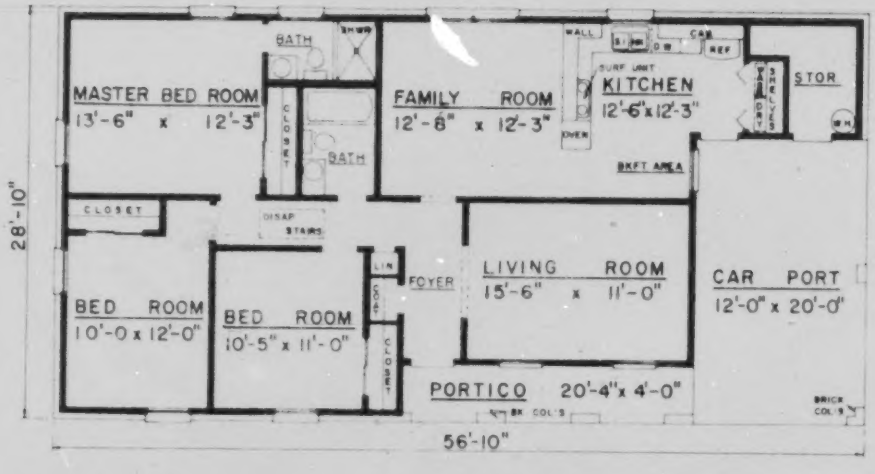





CLUSTER: DRAFTING

COURSE: ARCHITECTURAL DRAFTING

U.S. DEPARTMENT OF HEALTH
EDUCATION & WELFARE
NATIONAL INSTITUTE OF
EDUCATION

ED 107833

CE 003934 (a)

UNIT PACKAGE 1: ARCHITECTURAL LETTERING AND TIME SAVING DEVICES

PREREQUISITES: NONE

RATIONALE:

The architectural draftsman has to communicate. He must make his statements clear. Through the use of abbreviations, or symbols, he [illegible] use of [illegible]. His communicative skill are further developed when he letters in a legible manner. When practicing your lettering in this unit, remember someone else will have to read what you have written.

After producing the desired representations, the architectural draftsman must reproduce his prints. The contractor, workmen and other people have to have copies to perform their immediate functions. This package will help you develop the skill of reproducing your prints.

OBJECTIVE:

GENERAL:

Upon completion of this unit package you will be able to letter, using an architectural style, and know the basic architectural symbols.

OBJECTIVE (cont'd):

SPECIFIC:

Upon completion of the task packages for this unit, you will be able to:

1. Trace the alphabet and numerals, using the standard block and an architectural freehand method. Your performance will be evaluated on three quantities specified by Unit 23, Architectural Drafting and Design, and in accordance with the instructor's checklist.
2. Do the following:
   a. draw house plan symbols, using the timely T-30 template.
   b. interpret architectural components from a house plan and record appropriate symbolic notations.

   Your performance will be evaluated in accordance with the instructor's checklist.
3. Do the following:
   a. describe in writing three processes of reproducing drawings.
   b. operate a blueprint machine following the instructions of the instructor.

   Your performance will be evaluated in accordance with the instructor's checklist.

LEARNING ACTIVITY:

In order to complete this unit successfully, you should begin your work on task package 1, and then as a suggestion proceed to complete each task package in order, until you have finished each package in this unit. In the packages you will be asked to view a videotape presentation, read and answer questions, and perform some practical exercises. The number and names of the task packages included in this unit are as follows:

TASK PACKAGE 1: LETTERING, USING THE STANDARD BLOCK AND ARCHITECTURAL FREEHAND METHOD.

TASK PACKAGE 2: SYMBOLS USED IN ARCHITECTURAL DRAFTING.

TASK PACKAGE 3: DESCRIPTION OF REPRODUCTION TECHNIQUES AND OPERATION OF A BLUEPRINT MACHINE.

If you should feel confident enough to pass a comprehensive test at this time, contact your instructor. However, should you feel you are not ready to be tested, begin your work as outlined above.

DA-I-1

UNIT I: ARCHITECTURAL LETTERING AND TIME SAVING DEVICES

TASK PACKAGE 1: LETTERING USING STANDARD BLOCK AND ARCHITECTURAL FREEHAND METHOD

PREREQUISITES: NONE

RATIONALE:

The importance of clear communication cannot be overemphasized. We communicate with others every day in many ways. One method of communication used by the draftsman is the art of lettering.

The architectural draftsman has to communicate. He does this through his drawings, and he also does it through notes and notations. If someone cannot read his notes, then the draftsman has failed to communicate. This package will help you develop a skill in architectural lettering. You will find that there are various types of architectural lettering, yet all these variations stem from one format. After lettering for a while you'll see that you have developed a style all your own. But now let's see if you can form some good habits as well as good letters as you work on this package.

OBJECTIVE:

Upon completion of this task package you will be able to write the alphabet and numerals using the standard block and an architectural freehand method. Your performance will be evaluated by those conditions specified in Unit 22, Architectural Drafting and Design, and in accordance with the instructor's checklist.

LEARNING ACTIVITY:

1. Read Unit 22, pages 149 - 153, in Architectural Drafting and Design.
2. Review the sound-slide presentation _____, featuring Better Letters.
3. Study figure 22.2 on page 150 in Architectural Drafting and Design. (This textbook will henceforth be referred to as your textbook.)
4. If you'll note carefully, the type of lettering shown in this figure is a block style of lettering.
5. Study figure 22.3 on page 150 in your textbook. Notice the condensed version of the alphabet.
6. Architects use the National Standard Alphabet as a model and then form their letters employing a variation of the standard style.

LEARNING ACTIVITY (cont'd):

7. Study figure 22.5 on page 151 in your textbook.

8. Notice the expanded style of lettering.

9. What is the first rule of lettering as listed on page 150 in your textbook? _____

_____

10. What is the second rule of lettering as listed on page 151 in your textbook? _____

_____

11. What is the ninth rule of lettering listed on page 151 in your textbook? _____

_____

12. Looks as though you're clicking along. Take your answers to the instructor.

LEARNING PRACTICE:

DIRECTIONS: Read the entire Learning Practice before starting to work.

1. Obtain one sheet of paper from your instructor. The instructor will provide you with the paper you will use in the Learning Practice unless otherwise specified. He will also furnish you with the type of layout to use. This will include the border lines of the drawing, title strip and at times the size of paper.

LEARNING PRACTICE (cont'd):

2. Write a standard block form of the alphabet.
   a. Turn to page 150 in your textbook.
   b. Copy the letters in figure 22-2, using the block form indicated.
3. Write an architectural freehand method.
   a. Prepare your paper using the layout specified by the instructor.
   b. Turn to page 153 in your textbook.
   c. Do problems 1 and 2.
   d. Using your own individual style of lettering, letter the terms listed in problem 6 page 153.

Congratulations on finishing your very first Learning Practice and task package. Take your work to the instructor for an evaluation.

Make your letters better - and your letters will make you better.

DA-1-2

UNIT I: ARCHITECTURAL LETTERING AND TIME SAVING DEVICES

TASK PACKAGE 2: SYMBOLS USED IN ARCHITECTURAL DRAFTING

PREREQUISITES: UNIT I, TASK PACKAGE 1

RATIONALE

You've heard of shortening bread. They never did call it abbreviating bread. But shortening and abbreviating mean the same thing. So let's take a long look at the shortening process.

The architectural draftsman has to have a way of shortening his explanation of items on his drawings. He does this with symbols. These symbols are standardized and they have the same meaning throughout the country. When used correctly these symbols provide a means of transmitting ideas rapidly and clearly. You will need to know how to use these symbols effectively if you are to express yourself graphically. "Make this task package a piece of abbreviated work."

OBJECTIVE:

Upon completion of this task package you will be able to do the following:

a. draw house plan symbols using Timely T-30 template.

b. interpret architectural components from a house plan and record appropriate symbol notations.

Your performance will be evaluated in accordance with the instructor's checklist.

LEARNING ACTIVITY:

1. Read pages 141-143 and 169-176 in Architectural Drafting and Design.
2. Review sound-slide presentation _____, starring Mr. Timely T-30 House-plan Template.
3. What is a template? _____

_____

4. Study figure 21.1 on page 141 in your textbook. This is the type of template you will use in architectural drafting.
5. Check with your instructor and he will give you a Timely - T-30 house-plan template.
6. What is the scale used on the template? _____

_____

LEARNING ACTIVITY (cont'd):

7. How many symbols for a heater closet are there on the Timely T-30 template? _____

_____

8. How many types of doors are represented on the house plan template? _____

Name the types of doors. _____

_____

9. Study figure 25.3a on page 169 in your textbook.

10. Notice carefully the symbols for wood. There are two symbols for wood, one for rough and one for finished.

11. Note carefully the symbols for the different wall sections, doors and windows.

12. Study the figures on page 170 in your textbook.

13. You will not be concerned with all the symbols on this page, but some of them will be seen on a basic floor plan in the Learning Practice.

14. Study figure 25.4 on page 172 in your textbook.

15. What two materials are used for the walls of this structure?

_____

16. Your completing this Learning Activity could be "symbolic" of your success. Take your answers to the instructor.

LEARNING PRACTICE:

DIRECTIONS: Read the entire Learning Practice before starting to work.

1. Obtain a sheet of paper from your instructor. He will also give you the layout to use on your paper.
2. Draw symbols using the Timely T-30 template.
   a. Prepare your paper using the layout specified by the instructor. Be neat and orderly in arranging the duplications of the symbols from the template. Space the symbols evenly and in an order. You will be required to draw some symbols in the next part, and these symbols will be put on this same page.
   b. Duplicate the following symbols from a T-30 Timely House Plan Template:
      1. 32 x 21 double sink
      2. 30 x 60 tub
      3. 3' - 0" door
      4. by-passing door
      5. folding door
      6. 18" diameter lavatory
3. Draw the following symbols on the same paper as 2 above:
   a. Use a scale 1/4" = 1' - 0" to draw:
      1. inside door 2' - 8" wide
      2. double hung window 3' - 8" wide

LEARNING PRACTICE (cont'd):

3. symbol for earth section 2" x 1/2"

4. symbol for a brick veneer wall section 2" x 1/2"

4. Identify from the illustration the symbols required.

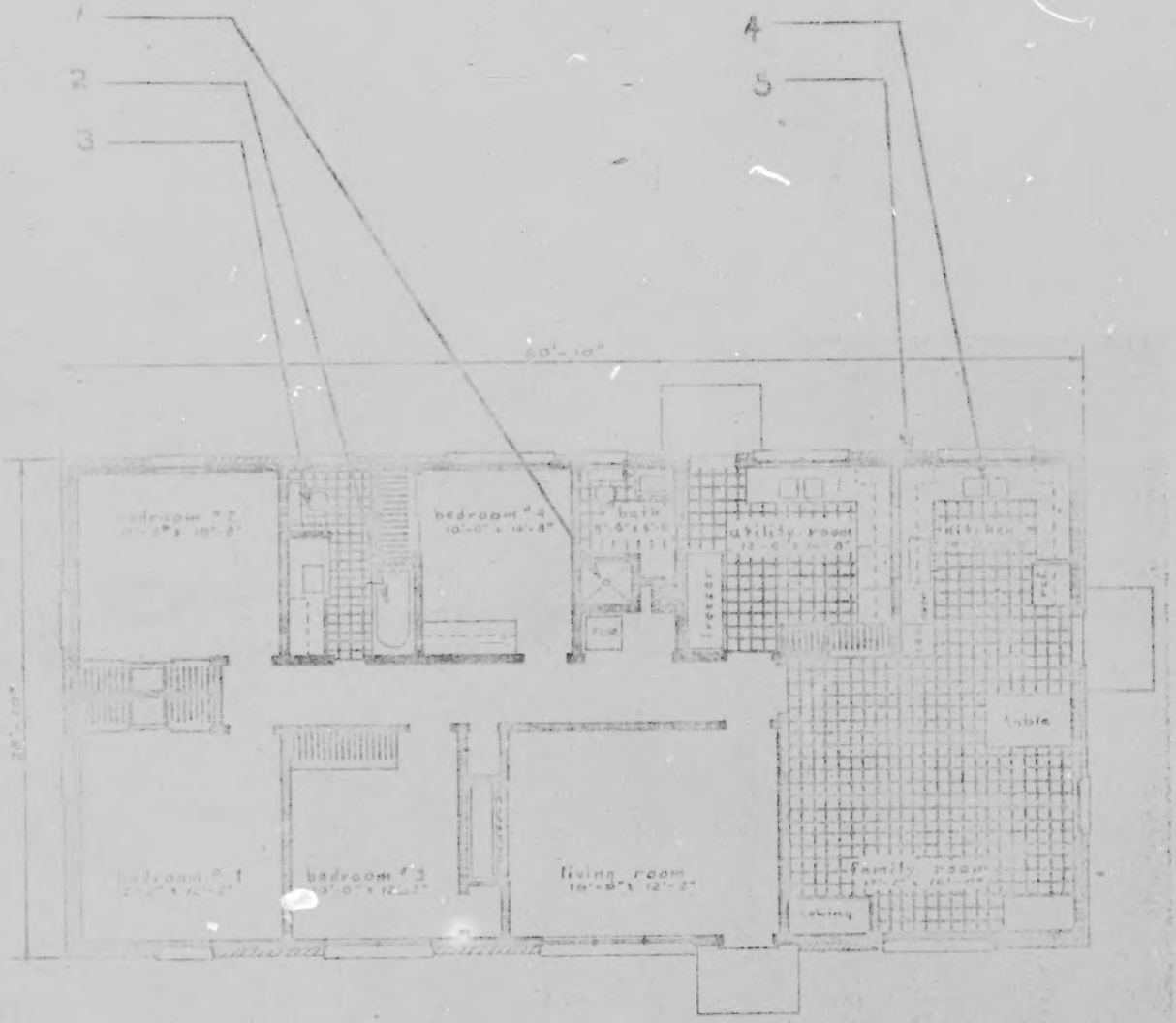
a. Turn to page 6 in this task package.

b. Study figure 1.

c. Identify by filling in the blanks the names of the symbols shown.

5. Could this be magic!! You've finished the Learning Practice. Take your work to the instructor for an evaluation.

Stick to your work - and it will stick to you.


1
2
3
4
5
60'-10"
bedroom #2
bedroom #4
10'-0" x 10'-8"
bath
utility room
kitchen
fireplace
table
bedroom #1
bedroom #3
living room
16'-8" x 12'-2"
family room
dining

1. _____
2. _____
3. _____
4. _____
5. _____

DA-I-3:

UNIT I: ARCHITECTURAL LETTERING AND TIME SAVING DEVICES

TASK PACKAGE 3: DESCRIPTION OF REPRODUCTION TECHNIQUES AND OPERATION OF A BLUEPRINT MACHINE

PREREQUISITES: NONE

RATIONALE:

When you finish with that drawing that only you can produce, what are you going to do with it? Have you considered reproducing it? The architectural draftsman has just about all his work reproduced. The workmen need a copy, the home owner needs a copy, the builder needs a copy, the money lender needs a copy. Get the picture? The draftsman has to know how to operate a reproducing machine and some of the different processes used to reproduce drawings. This task package will turn on the light of reproductibility. See if you can turn on by a successful completion of this package.

OBJECTIVE:

Upon completion of this task package you will be able to do the following:

a. describe in writing three processes of reproducing drawings.

b. operate a blueprint machine following the instructions of the instructor.

Your performance will be evaluated in accordance with the instructor's checklist.

LEARNING ACTIVITY:

1. Study pages 4, 5, and 6 in this task package.
2. You probably realize that producing a blueprint the old - fashioned way involves time, and could be messy.
3. The diazo method is cleaner and quicker. Most industries today use the diazo method of producing prints. These are not called "blue prints" but are called "white prints." They are so called because the background can be controlled to get no pigment of color.
4. There are modern blueprint machines, and they eliminate some of the problems of time and trouble to produce readable prints.
5. Photostat reproductions are expensive and, therefore, few contractors and architects use this method of reproduction.

LEARNING ACTIVITY (cont'd):

6. Is your knowledge reproducible? Check with your instructor.

LEARNING PRACTICE:

DIRECTIONS: Read the entire Learning Practice before starting to work.

1. Describe three methods of reproducing drawings.
   a. On a sheet of ruled note paper answer the following:
      1. Describe the blueprint method of reproducing drawings.
      2. Describe the diazo process for reproducing drawings.
      3. Describe the photostat method of reproducing drawings.
2. Operate a "blueprint" machine. (The machine is called a blueprint machine but actually uses the diazo process of reproducing prints.)
   a. Report to your instructor. He will give you specific directions about operating the reproducing machine.

You're true blue to modern blueprinting techniques.

## HOW VARIOUS TYPES OF PRINTS ARE MADE

As mentioned earlier, original drawings are first made in the drafting room on some type of translucent material like tracing paper, vellum, or film for the purpose of convenient and inexpensive reproduction. These original drawings would have little value unless economical prints could be made from them. Many sets of the prints, commonly referred to as "blueprints," are needed, not only for the usual bidding procedures of a job but also for the many tradesmen who must do the work. The architectural office usually provides a predetermined number of the sets as part of the architectural contract. Then it is common practice for the architectural firm to retain the originals for their files.

The reproduction of drawings in most urban areas can be done by local blueprint firms for nominal costs. The cost is normally based on the square footage of the prints.

The more common methods currently used for making prints of construction drawings are given below.

### Blueprints

This method, sometimes called the "iron process," has been in use for more than 125 years. Invented in England in 1840, it was introduced into this country shortly afterward. We might say that it is a negative process, for it produces prints with white lines on a dark blue background from original drawings having dark lines and a light background. Drawings on translucent paper are placed directly over sensitized paper and fed into the blueprint machine. An ultraviolet light in the machine peretrates the translucent areas of the drawing as it passes through, exposing the sensitive chemical on the paper below but not affecting the areas directly below linework.

Blueprinting is actually a photographic method of copying an original drawing. Photosensitive paper used has chemicals on its surface, yet it appears white to the eye. The development of the sensitive paper is then completed by washing in a fixing bath, usually potassium bichromate and water or other oxidizing agents, followed by a bath of clear water. The print is then dried. The clear water bath washes away all the chemicals, which have been protected by the linework on the original. The fixing bath also improves the contrast on the print.

Most modern blueprint machines complete these operations in one continuous pass through the machine with the use of sensitized paper in roll form. For this purpose, high wet-strength paper with at

least 50 per cent rag content is used. Cut sheets involve more hand labor.

In printing, if the print comes out with a pale blue color background, it has been underexposed and therefore requires more time of exposure; if it comes out too dark, time of exposure must be decreased to produce a satisfactory print.

Blueprints are economical in cost, stand up comparatively well under normal light, and resist aging. However, because of the water bath, the paper shrinks slightly, and this, of course, changes the scale of the drawings. Also, the dark nature of the background makes it difficult to make corrections or additions directly on the print with regular pencils.

All prints should be rolled and stored in a convenient place when not in use; they tend to deteriorate when left exposed to light, especially direct sunlight.

A positive print (white background and dark lines) can be made by this process with the use of a "vandyke" intermediate print. When the sensitive vandyke paper is fed into the blueprint machine with the drawing, the light turns the background areas of the vandyke dark brown and leaves the linework light and translucent. When this intermediate print and the regular sensitive paper are again fed into the machine together, a print with white background and blue lines results. Vandyke intermediates are permanent and can be used over and over. The white background provides the advantage of ease in making pencil corrections or additions directly on the print.

Diazo Prints

Diazo prints are white background and dark linework type prints. The process is a direct, positive method. A positive copy is made from a positive original -- just the reverse of blueprinting. The sensitive copy materials (papers, films, or cloths) are coated with a thin, dry emulsion of a diazo chemical compound. This coating is very sensitive to ultraviolet light and combines readily with a material known as a "coupler" to form the permanent dye image. The sensitized paper with the original drawing is exposed to the ultraviolet light for a controlled amount of time, similar to the blueprint machine. In the process, the diazo compound decomposes wherever it is exposed to the light and fails to produce an image. But wherever the lines on the drawing block out the ultraviolet light, the diazo coating remains. The exposed sheet is then developed by passing it through an alkaline ammonia vapor. This step permits any remaining diazo compound to combine with the coupler, and a permanent image is formed. The process is sometimes

Known as an ammonia process because of the developer. Usually the most readable print results if, when running the print through the machine, the speed is adjusted to produce a slight amount of color in the background rather than a clear white. Blue line, black line, or sepia line prints can be made, depending on the paper selected. Diazo prints are comparatively dry when they come out of the machine and hence can be used immediately. Intermediate prints can also be made with this process, thus eliminating the continual use of the original tracing. The method has become the most widespread for making construction prints.

Photostat Reproductions

If reproductions have a different scale from their originals, usually a photostat machine has been used to produce them. The machine utilizes a large, especially designed camera to make the direct photographic reproduction from the original, which may be on either tracing or opaque paper. Direct focusing on sensitive paper allows the scale of the image to be easily controlled. The print produced in the first step has white lines and a black background, similar to a photograph negative; positives with a white background and black lines are then produced by rephotostating the negative. This process is more expensive than either of the previously mentioned methods, but the reproductions are more permanent.

Congratulations on the successful completion of another task package in the Wonderful World of Knowledge.

RESEARCH PROJECT

SANFORD CENTRAL HIGH SCHOOL

1708 NASH STREET

SANFORD, NORTH CAROLINA 27330

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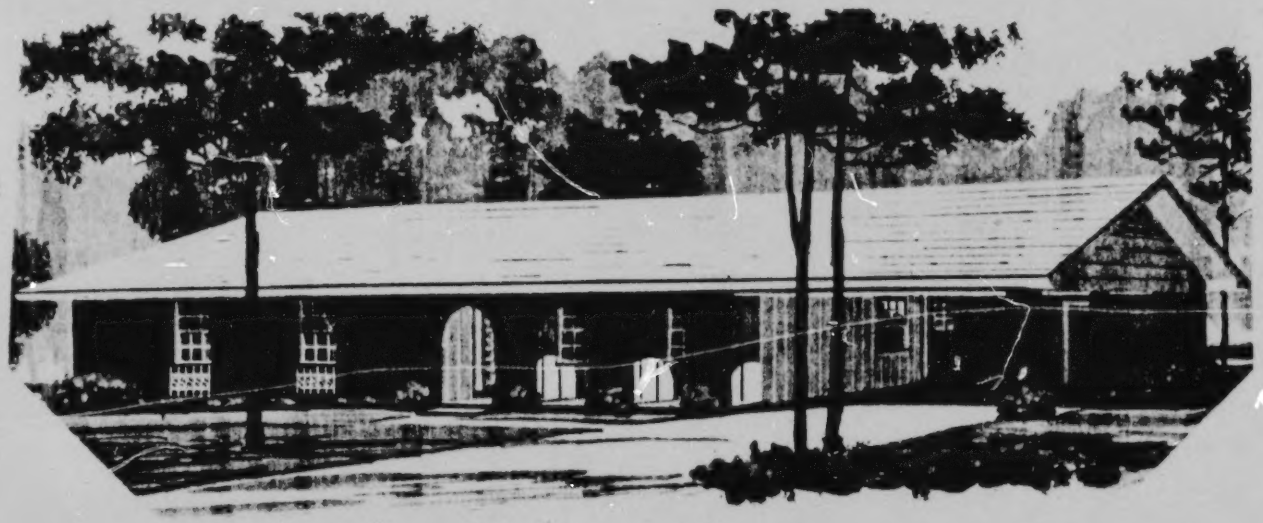
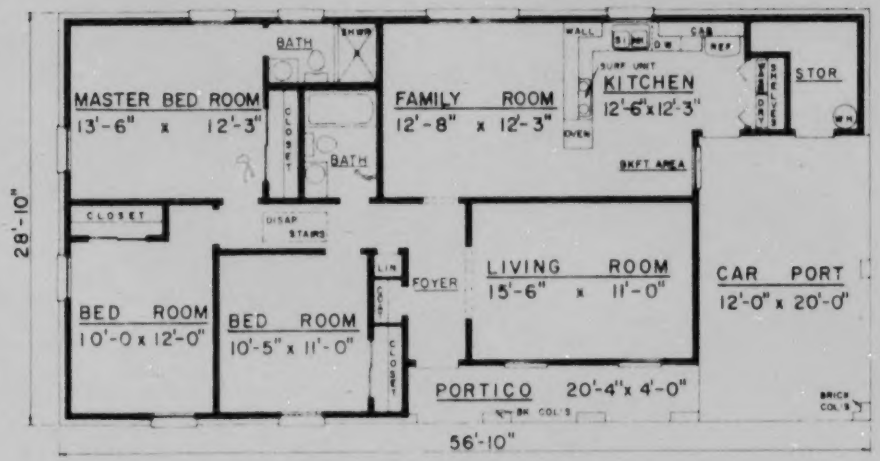





CLUSTER: DRAFTING

COURSE: ARCHITECTURAL DRAFTING

CE 00 3934 (b)

DA-II

UNIT PACKAGE 2: PLANNING THE HOUSE FOR EVERYDAY LIVING

PREREQUISITES: UNIT I

RATIONALE:

The first step to consider when getting ready to draw a floor plan and other drawings for a residence is to plan the house. The architectural draftsman has several things he must consider before starting with the actual house plan. The specific areas of a house such as living, sleeping, and service must be situated in reference to wind, shade and sun. These are things you must consider before starting with your project. Plan your every move so that you orient your goals for the successful completion of this unit.

OBJECTIVES:

General:

Upon completion of this unit package you will be able to plan and draw the functional areas of a house and be able to orient the house to natural features when placed on a lot.

Specific:

Upon completion of the task packages for this unit, you will be able to:

1. Given a plot of ground, do the following:
   a. Select the style of house which best suits the features of a given lot.

OBJECTIVES (cont'd):

b. Orient the house to natural features.

Your performance will be evaluated in accordance with the instructor's checklist.

2. Determine and draw the following functional areas of a residence with 1,000 square feet:

a. living.

b. service.

c. sleeping.

Your performance will be evaluated from criteria specified in sections one, two and three of Architectural Drafting and Design, and in accordance with the instructor's checklist.

LEARNING ACTIVITY:

In order to complete this unit successfully you should begin your work on Task Package 1, and then as a suggestion proceed to complete each task package in order until you have finished each package in this unit. In the packages you will be asked to view a sound-slide presentation, read and answer questions, and perform some practical exercises. The number and names of the task packages included in this unit are as follows:

TASK PACKAGE 1: SELECTING THE PROPER HOUSE AND ORIENTING TO NATURAL FEATURES

TASK PACKAGE 2: DETERMINING AND DRAWING TRAFFIC AND UTILIZATION AREAS

DA-II-1

UNIT II: PLANNING THE HOUSE FOR EVERYDAY LIVING

TASK PACKAGE 1: SELECTING PROPER HOUSE AND ORIENTING TO NATURAL FEATURES

PREREQUISITES: UNIT I

RATIONALE:

Orienting a house doesn't mean sailing to the East with it. A house doesn't have to go to Japan to be oriented. Why don't you learn how a house can be oriented right here in America?

The first thing that has to be done before a house is built on a lot is to orient the house. The house is placed on the lot so that the best sunlight and wind conditions can be gained. Also, there are certain types of houses that are conducive to certain lots. To compliment the design feature, a house should blend well with the lot. It should not be haphazardly placed on the lot. These are some of the ideas you must be familiar with before you actually start drawing the floor plan of a house. "Orientation of a house to a lot is the name, and finishing successfully this task package is the game."

OBJECTIVE:

Upon completion of this task package you will be able, given a plot of ground, to do the following:

a. select the style of house which best suits the features of a given lot.

b. orient the house to natural features.

Your performance will be evaluated on the basis of the instructor's checklist.

LEARNING ACTIVITY:

1. Read pages 187 - 196 in Architectural Drawing and Design. Start reading with the section entitled Fundametal Shapes and read through Overhang.
2. Study figure 27 - 4 on page 188 in your textbook.
3. How many types of one-story structures are illustrated in figure 27-4? _____

_____

4. Study figures 27-5 and 27-6 on page 188 in your textbook.
5. Can both the one and one-half story and the two-story house have a basement? _____

_____

LEARNING ACTIVITY (cont'd):

6. One important item to consider when selecting a house is the type of lot the house will sit on. Differently shaped lots both geometrically and contourally (slopes and hills) play an important part in the selection of a house.
7. Study figure 27-7 on page 189 in your textbook.
8. Study the different types of split levels.
9. What type lot is more conducive to a split-level house? _____

_____

10. Study figure 27-3 on page 187 in your textbook. The different styles of houses shown in this figure are built on particular types of lots. These houses serve a function.
11. Study figure 27 - 23 on page 195 in your textbook.
12. Why is overhang important on a house? _____

_____

13. Study figures 27 - 25a and 27 - 25b on page 195 in your textbook.
14. What is the difference in relation to sun and shade when using a large overhang as compared to a small overhang? _____

_____

_____

15. Read Unit 67 on pages 466 - 472 in your textbook.
16. Describe solar orientation. _____

_____

_____

LEARNING ACTIVITY (cont'd):

17. Study figure 67-2 on page 466 in your textbook.

18. From what direction does a house get more sun? _____

_____

19. What restricts the position of a house on a lot? _____

_____

20. What is organic architecture? _____

_____

_____

21. Have you oriented yourself on this Learning Activity?

Take your answers to the instructor.

LEARNING PRACTICE:

DIRECTIONS: Read the entire Learning Practice before starting to work.

1. Obtain two sheets of paper from the instructor. He will provide you with the correct layout to use.

2. Locate a house on a lot.

   a. Prepare paper, 8 1/2 x 11, using proper layout - 3/32 scale.

   b. Turn to page 472 in your textbook and study figure 67-13.

   c. The northern end of this lot has an elevation of 250'. The southern end has an elevation of 240'.

   d. Using the model supplied in the illustration (figure 67-14), place this house on the lot, labeling as to what type of house it should be to relate to the lot. Locate the house

LEARNING PRACTICE (cont'd):

centrally on the lot.

e. Dimension the lot and house layout correctly.

3. Reorient a house on a lot.

a. Prepare your paper.

b. Turn to page 472 in your textbook and study figure 67-16.

c. Draw the lot layout as shown in this figure.

d. Reorient the areas of the house, using the principles found in Unit 67 of your textbook.

e. Be sure to label wind, view and points of the compass.

Have you oriented yourself for the successful completion of this task package? If you have, take your work to the instructor for an evaluation.

Through careful consideration, you can orient yourself to an exciting career in drafting.

DA-II-2

UNIT II: PLANNING HOUSE FOR EVERYDAY LIVING

TASK PACKAGE 2: DETERMINING AND DRAWING TRAFFIC AND UTILIZATION AREAS

PREREQUISITES: UNIT II, TASK PACKAGE 1

RATIONALE:

If the areas of a residence don't function properly, the house does not serve its purpose. In fact, it takes a lot of functioning to make a house a home. Therefore, learn about this functional quality now.

The architect gives some thoughts to the functional areas of a residence. Do you have any idea what the functional areas are? If you successfully complete this package, you should know three types of functional areas. These areas are important because they provide a key to the layout of the house. The functional areas help determine room sizes, and even the type of room you should include in a floor plan. "Gather your wits and see how you will function with this task package."

OBJECTIVE:

Upon completion of this task package you will be able to determine and draw the following functional areas of a residence with 1000 square feet.

a. living.

b. service.

c. sleeping.

Your performance will be evaluated from criteria specified in sections one, two and three of Architectural Drafting and Design, and in accordance with the instructor's checklist.

LEARNING ACTIVITY:

1. Read pages 16 - 20 in Architectural Drafting and Design.
2. Review sound-slide presentation _____.
3. What are the three functional areas of a residence? _____

   _____
4. What are some of the subdivisions of the living area? _____

   _____
5. What are the two plans that can be incorporated in the living area? _____

   _____
6. Read page 79 in Architectural Drafting and Design.
7. What are some of the subdivisions of the service area?

   _____

LEARNING ACTIVITY (cont'd):

8. What should be the important factor in designing a service area? _____

_____

9. Read pages 108 -112, in Architectural Drafting and Design.

10. What are the subdivisions of the sleeping area? _____

_____

_____

11. What is the function of the bedroom? _____

_____

12. What is the function of the living room? _____

_____

13. Where is the living room located? _____

_____

14. A well-planned kitchen has three design features. What are they?

_____

_____

15. Have you remained functional through this Learning Activity?

Take your answers to the instructor.

LEARNING PRACTICE:

DIRECTIONS: Read the entire Learning Practice before starting to work.

1. Determine the Functional Areas of a house.

a. Turn to page 5 in this task package.

LEARNING PRACTICE (cont'd):

b. Write the rooms that belong to the areas listed.

1. Living areas

a. _____

b. _____

2. Service area

a. _____

b. _____

3. Sleeping area

a. _____

b. _____

c. _____

d. _____

2. Draw functional areas of a home.

a. Turn to page 178, in Architectural Drafting and Design.

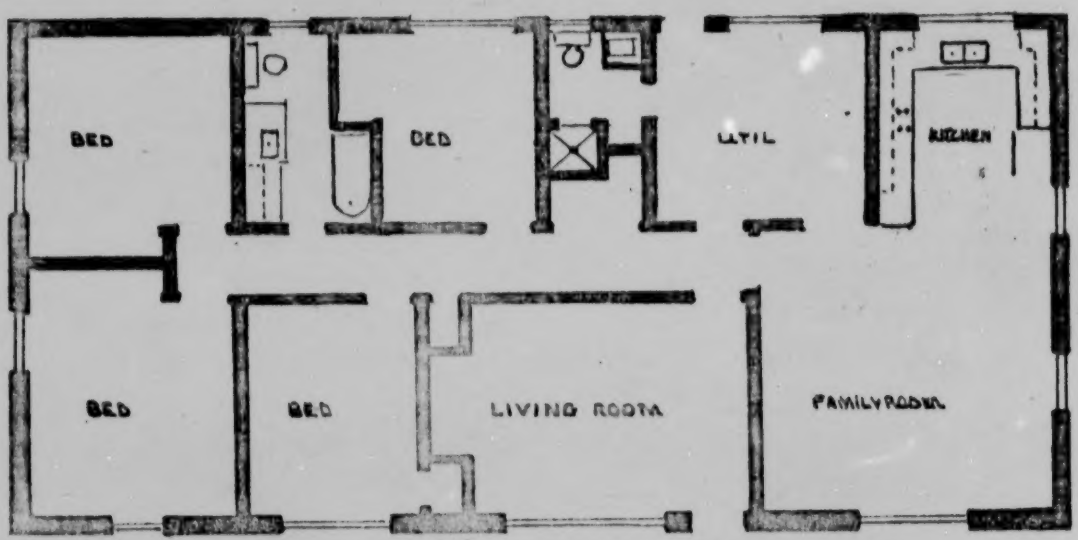
b. Study figure 2b.10.

c. Draw the floor plan and label the three functional areas of this plan. Use 8 1/2 x 11 paper - 1/4 scale.

Keep fooling along. Drafting is your thing. Keep it up. Take your work to the instructor so he can evaluate it. You're really functioning well in your drafting studies.

BEST COPY AVAILABLE

AREAS OF A HOME



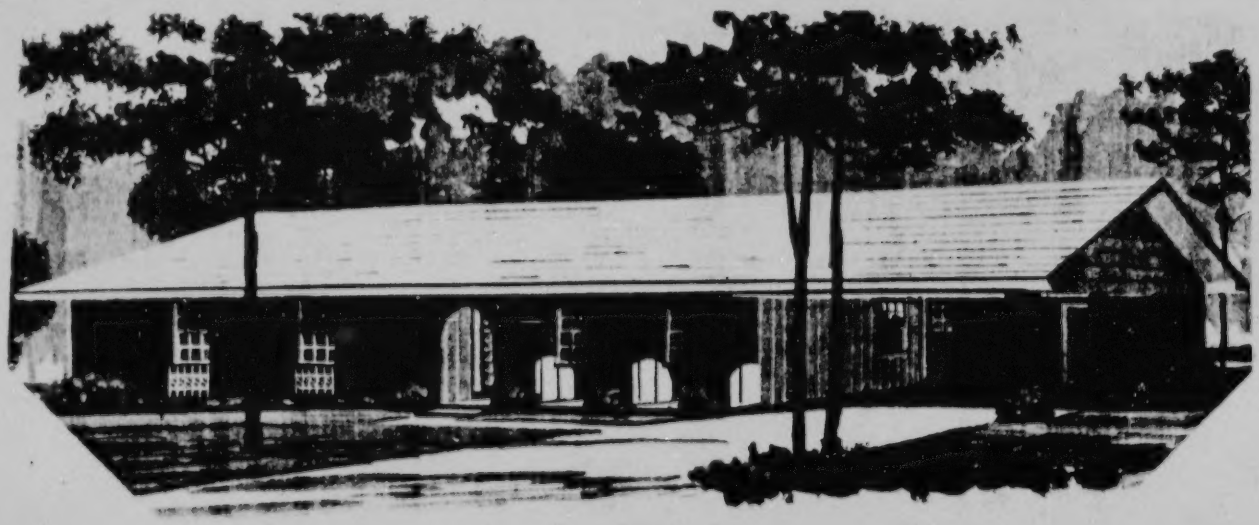
RESEARCH PROJECT

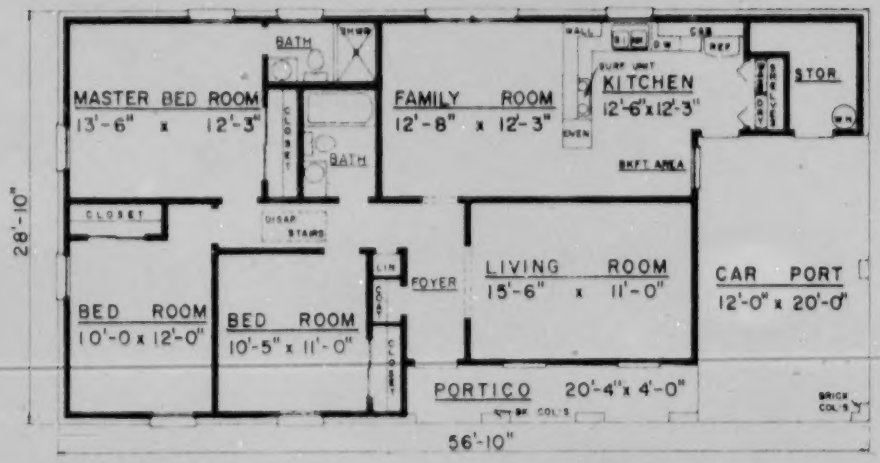
SANFORD CENTRAL HIGH SCHOOL

1708 NASH STREET

SANFORD, NORTH CAROLINA 27330

22






CLUSTER: DRAFTING

COURSE: ARCHITECTURAL DRAFTING

CE003934 (a)

DA-III

UNIT PACKAGE III: DRAWING A RESIDENTIAL FLOOR PLAN

PREREQUISITES: UNITS I AND II

RATIONALE:

After the architectural draftsman or the architect has drawn a plan for the house, the next step is to draw the preliminary sketches of the floor plan. This is one of the important steps for the architectural draftsman because the floor plan holds the key for several other drawings that are concefned with the construction of the house.

The draftsman includes the dimension of the floor plan. The floor plan contains the size and shape description of the house. The draftsman must know the correct procedure for dimensioning his plans. After an appropriate plan has been drawn, it must be placed on a plot plan. This gives the homeowner, contractor, and workmen an idea of how the house will look when situated on the plot. You can plan a plot for a study. Now plot to finish this unit package.

OBJECTIVE:

GENERAL:

Upon completion of this unit package you will be able to draw a residential floor plan to scale and plan a floor plan on a plot.

OBJECTIVES (cont'd):

Specific:

Upon completion of the task packages for this unit, you will be able to:

1. Given a sheet of instructions, sketch three preliminary floor-plan samples, using a different plan for each. Your performance will be evaluated from criteria specified in Units 23 and 24 of Architectural Drafting and Design and in accordance with the instructor's checklist.
2. Draw a finalized floor plan from a preliminary plan. You will be required to use the correct architectural symbols and scale for your presentation. Your performance will be evaluated from criteria specified in Unit 25, Architectural Drafting and Design, and in accordance with the instructor's checklist.
3. List ten rules for dimensioning floor plans. Your performance will be evaluated by the criteria specified in Unit 26, Architectural Drafting and Design, and in accordance with the instructor's checklist.
4. Dimension a house plan. Your performance will be evaluated by the criteria specified in Unit 26, Architectural Drafting and Design, and in accordance with the instructor's checklist.
5. Draw a residence on a plot using appropriate symbols. Your performance will be evaluated as specified in Unit 35 of Architec-

tural Drafting and Design, and in accordance with the instructor's checklist.

LEARNING ACTIVITY:

In order to complete this unit successfully you should begin your work on task package 1, and then as a suggestion proceed to complete each task package in order, until you have finished each package in this unit. In the packages you will be asked to view a sound-slide presentation, read and answer questions, and perform some practical exercises. The number and names of the task packages included in this unit are as follows:

TASK PACKAGE 1: SKETCHING PRELIMINARY FLOOR PLAN

TASK PACKAGE 2: DRAWING A FINALIZED FLOOR PLAN

TASK PACKAGE 3: LISTING THE RULE FOR DIMENSIONING FLOOR PLANS

TASK PACKAGE 4: DIMENSIONING A FLOOR PLAN

TASK PACKAGE 5: PLANNING A RESIDENCE ON A LOT

If you should feel confident enough to pass a comprehensive test at this time, contact your instructor. However, should you feel you are not ready to be tested, begin your work as outlined above.

UNIT III: DRAWING A RESIDENTIAL FLOOR PLAN

TASK PACKAGE 1: SKETCHING PRELIMINARY FLOOR PLAN

PREREQUISITES: UNITS I - II

RATIONALE:

Remember the house that Jack built? It had to have a design first. If you had been around, you could have designed it for him. Maybe Jill is interested in building a house now. Why don't you try designing this one?

Would you believe it!! You are about to get down to business and design a house. Where do you start? The first order of business is the development of the floor plan. This particular drawing holds the key for the other drawings that follow. This package and your quickened desire for knowledge will lead you to the successful completion of a preliminary floor plan. Remember this is an important step in the total design of the complete structure. So, be your competent self as you work through this package.

OBJECTIVE:

Upon completion of this task package you will be able to, given a sheet of instructions, sketch three preliminary floor plan samples, using a different plan for each. Your performance will be evaluated from criteria specified in Units 23 and 24, Architectural Drafting and Design, and in accordance with the instructor's checklist.

LEARNING ACTIVITY:

1. View sound-slide presentation _____.
2. Read Unit 23, pages 154-159, in Architectural Drafting and Design.
3. The most important drawing in a set of residential plans is the _____ _____
4. Study figure 23.11 on page 158 in your textbook.
5. What is the size of an average living room? _____
6. What is the size of an average bedroom? _____
7. Study figure 23.4, page 156, in your textbook. The illustration shows pieces of furniture and their size. This information aids the architect in determining the size of a room.
8. Read Unit 24, pages 159-166, in Architectural Drafting and Design.
9. Study figures 24.7A-C on page 162 in your textbook.

LEARNING ACTIVITY (cont'd):

10. Study figure 24.9b, pages 163 and 164, in your textbook. These are some of the shapes a house may assume.

11. Describe in writing the difference between open and closed plans.

_____

_____

12. What is an expandable plan? _____

_____

13. Study figure 24.5, page 161, in your textbook. You may want to make and use templates such as these when you do your floor plan in the Learning Practice.

14. Study figure 24.6, page 161, in your textbook. Study carefully the illustrations of the stairs. This information will be important to you if you have stairs in your plan.

15. Who knows? This may lead you to the level of a Frank Lloyd Wright or a Buckminster Fuller. Take your answers to the instructor.

LEARNING PRACTICE:

DIRECTIONS: Read the entire Learning Practice before starting to work.

LEARNING PRACTICE (cont'd):

1. Statement of the problem.

   Design and draw the floor plan for a house of 1,200 square feet with the following specifications:

   a. Family of four, which includes a daughter and son.

   b. Master bedroom to be average size.

   c. Other bedrooms to be average size.

   d. Kitchen, average size.

   e. Family room to be large.

   f. Dining room, average size.

   g. You are to use your discretion about closets, porches and patios. There will be no garage. You may also use your discretion about the style and form of the house.

   h. The selection of materials to use in construction is up to you.

   i. This is your baby. Let's see how you let him grow.

2. Obtain three sheets of 8 1/2 x 11 paper from your instructor. He will give you the proper layout to use on your paper. He may answer any questions you may have about the problem.

3. Sketch the first preliminary plan.

   a. Study figure 24.9b, page 163, in your textbook.

   b. Select one of the plans and develop your design around this shape.

LEARNING PRACTICE (cont'd):

c. Sketch the floor plan, using the information in b.

4. Sketch the second preliminary plan.

a. Select another plan from figure 24.9b.

b. Develop your design using this new plan.

c. Sketch the floor plan, using the information from b.

5. Sketch the third preliminary plan.

a. Select a third plan from figure 24.9b.

b. Develop your design using this shape.

c. Sketch the floor plan using the information from b.

6. Seek an audience with your instructor. Both you and he discuss the preliminary plans. Select one for the final proposal.

Keep tooling along the road of success. It's the honey patch of knowledge.

Planning - that's what it takes in building a house or a career in drafting.

DA-III-2

UNIT III: DRAWING A RESIDENTIAL FLOOR PLAN

TASK PACKAGE 2: DRAWING A FINALIZED FLOOR PLAN

PREREQUISITES: UNITS I, II; UNIT III, TASK PACKAGE 1

RATIONALE:

You had a triple option in the previous assignment. In moving ahead, the time has arrived for you to choose one of those options and concentrate on developing it.

You designed three preliminary plans in the last package. You are going to have the opportunity to finalize one of the preliminary plans. The architectural draftsman starts with sketches and preliminary ideas as he develops all these into a final idea. The final plan will reflect all the changes that were made and any new ideas that were expressed. Remember the floor plan is a very important presentation. The floor plan serves as a guide in the development of other drawings. "Don't let this package floor you. Just plan it through and you'll succeed."

OBJECTIVE:

Upon completion of this task package you will be able to draw a finalized floor plan from a preliminary plan. You will be required to use the correct architectural symbols and scales for your representation. Your performance will be evaluated from criteria specified in Unit 25, Architectural Drafting and Design, and in accordance with the instructor's checklist.

LEARNING ACTIVITY:

1. View sound-slide presentation _____.
2. Read Unit 25, pages 167 - 178, in Architectural Drafting and Design.
3. Study figure 25.2a-b, page 168, in your textbook.
4. Study figure 25.3a, page 169, in your textbook.
5. How many symbols for windows are shown in the illustration in figure 25.3a? _____
6. Study figure 25.4, page 172, in your textbook. Study carefully how the different symbols are incorporated into the floor plan.
7. What do the dotted lines next to the foyer represent?

_____

8. Study figure 25.5a, page 173, in your textbook.
9. Notice the views enclosed in the circles. These represent section views of construction features.

LEARNING ACTIVITY (cont'd):

10. Study figures 25.5b and 25.7, page 174, in your textbook.
11. These again are the construction features represented by floor-plan symbols.
12. Study figure 25.8, page 175, in your textbook.
13. This is the sequence you will follow when you draw your floor plan. See all the information contained in illustration 3.
14. Study carefully the floor plan on the attached sheet in this task package.
15. Notice how the single line floor plan has even developed into a very nice presentation at the bottom of the page.
16. Using the attached sheet, page 5 in this task package, list the rooms that comprise the different functional areas of living, service and sleeping.
17. Who said learning could not be fun? It is, isn't it? Take your answers to the instructor.

LEARNING PRACTICE:

DIRECTIONS: Read the entire Learning Practice before starting to work.

1. Obtain a sheet of 17 x 22 paper from the instructor. He will also give you the proper layout to use.
2. Draw a finalized floor plan.
   a. Prepare your paper using the proper layout.
   b. Draw a floor plan using the preliminary plan approved

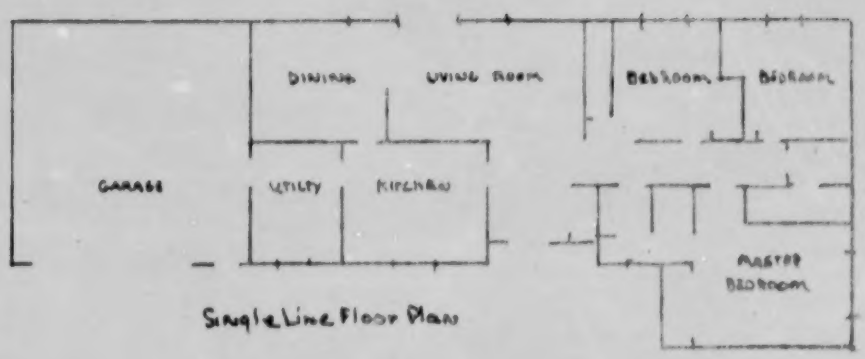
LEARNING PRACTICE (cont'd):

by you and the instructor. Use the following criteria:

1. Scale 1/4" = 1' - 0".
2. Appropriate architectural symbols for house plans.
3. Center the plan on the paper in an orderly and neat fashion.
4. Do not dimension the floor plan.

You think you're groovy since you've finished another Learning Practice, do you? Well, you are, man. Take your work to the instructor so he can evaluate it.

Now, don't get over-confident, but, like the car-rental agency, always try harder.




Single Line Floor Plan

DA-III-3

UNIT III: DRAWING A RESIDENTIAL FLOOR PLAN

TASK PACKAGE 3: LISTING THE RULES FOR DIMENSIONING FLOOR PLANS

PREREQUISITES: UNITS I-II; UNIT III, TASK PACKAGES 1 - 2.

RATIONALE:

Everything and everyone have dimensions. You have dimensions - and so do your friends. The floor plan of a house, too, has dimensions. Learn about the dimensioning process here.

To be constructed accurately and according to plan, the structure must have dimensions. The dimensions are placed on the floor in a prescribed manner. The architectural draftsman has to be familiar with the methods so that his placement of dimensions and general facts stated on a plan are consistent. This task package will give you assistance in obtaining the knowledge of dimensioning "know-how." The proper dimensioning of floor plans will help you communicate your ideas more clearly. The dimensions serve as an additional guide in the conveyance of your graphical representations. "So, let's seek the outer and inner dimensions of this task package."

OBJECTIVE:

Upon completion of this task package you will be able to list ten rules for dimensioning floor plans. Your performance will be evaluated based on the criteria in Unit 26, Architectural Drafting and Design, and in accordance with the instructor's checklist.

LEARNING ACTIVITY:

1. View sound-slide presentation _____.
2. Read Unit 26, pages 179 - 184, in Architectural Drafting and Design.
3. The floor plan is drawn to a scale. The scale generally used is 1/4" = 1' - 0".
4. Study figure 26.1, page 180, in your textbook.
5. Notice how the outside dimensions for the structure are given.
6. The room dimensions are given in a note form under the title for each room. The dimension for length is given first, then the dimension for the width is presented.
7. Study the rules for dimensioning listed on pages 180 and 182 in your textbook.
8. Study figure 26.2, page 181, in your textbook.
9. Looking at figure 26.2, you notice the blue arrows that are numbered. These arrows identify the rules expressed on pages 180 and 182.

LEARNING ACTIVITY (cont'd):

10. Look at arrow number 4 on page 181. This refers to rule 4, which states "Dimensions less than 1' are shown in inches only."
11. Study figures 26.3 and 26.4, page 182, in your textbook.
12. Notice how the dimensions for the brick or stone are added to the framing dimensions.
13. The exceptions to number 12 above occur when only framing dimensions are used.
14. You've got a lot to learn, and the Learning Practice has a lot to give. Check with your instructor.

LEARNING PRACTICE:

DIRECTIONS: Read the entire Learning Practice before starting to work.

1. List rules for dimensioning.
   a. On a sheet of ruled note paper list ten rules used in dimensioning floor plans.
2. From the illustration on page 181 in Architectural Drafting and Design, list the rules that apply to the arrowheads numbered 21, 19 and 12.
3. From the illustration on page 181, list the rule that applies to the arrowhead numbered 14.
4. Which rule applies to the sizes of doors and windows?

LEARNING PRACTICE (cont'd):

5. What does rule 24 state?

Take your answers to the instructor for his evaluation.

You're reaching new dimensions as an architectural draftsman.

DA-III-4

UNIT III: DRAWING A RESIDENTIAL FLOOR PLAN

TASK PACKAGE 4: DIMENSIONING A FLOOR PLAN

PREREQUISITES: UNITS I-II; UNIT III, TASK PACKAGES 1-3

RATIONALE:

Your final floor plan needs dimensioning, just as everything else does. So don't dim the light of knowledge here, but brighten it through a dimensioning practice.

You drew your final floor plan in package two of this unit. With the completion of package three and this package, you will be able to complete the floor plan by correctly dimensioning it. Remember the floor plan constitutes an important segment in the process of developing house plans. Mistakes that are made on a floor plan can compound on some of the other drawings. "Let's whirl into this package on dimensioning by sizing up this task package."

OBJECTIVE:

Upon completion of this task package you will be able to dimension a floor plan. Your performance will be evaluated by the criteria specified in Unit 26, Architectural Drafting and Design, and in accordance with the instructor's checklist.

LEARNING ACTIVITY:

1. View sound-slide presentation _____.
2. Read Unit 26, pages 179-184, in Architectural Drafting and Design.
3. Study figure 26.2 on page 181 in your textbook.
4. How wide is the garage in the illustration?

   _____

5. How wide is the kitchen?

   _____

6. What are the total dimensions of the structure?

   _____

7. What are the dimensions called that do not align with the 4" module? _____

   _____

8. Study figure 26.10 on page 184 in your textbook.
9. Find the dimensioning errors shown in A, B, C, D, and E.
10. Find the dimensioning errors shown in F, G, H, I, and J.
11. Find the dimensioning errors shown in K, L, M, N, and O.
12. Keep plugging -- the end is in sight. You've finished the Learning Activity. Take your answers to the instructor.

LEARNING PRACTICE:

DIRECTIONS: Read the entire Learning Practice before starting to work.

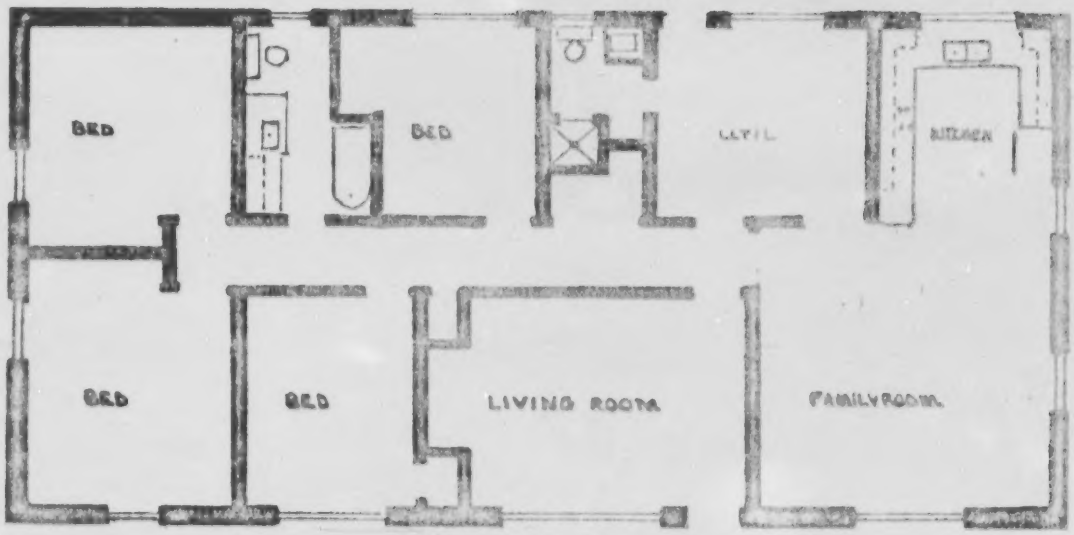
LEARNING PRACTICE (cont'd):

1. Turn to page 4 in this task package.
2. Study figure one on page 4.
3. Using a scale 1/8" = 1' - 0", dimension the floor plan in figure one.
   a. When dimensioning use the rule specified in Unit 26.
   b. Use a minimum of dimensioning on this problem. Include room size and overall building dimension.
4. Dimension the finalized plan.
   a. Dimension your finalized floor plan that was done in package two of this unit.
   b. Use the correct method for dimensioning.
   c. If you have problems check with the instructor.

Right on with a task package. But, as for now, take your work right on to the instructor for an evaluation.

You're discovering new dimensions of creativity.

AREAS OF A HOME



DA-III-5

UNIT III: DRAWING A RESIDENTIAL FLOOR PLAN

TASK PACKAGE 5: PLACING A RESIDENCE ON A PLOT

PREREQUISITES: UNITS I, II; UNIT III, TASK PACKAGES 1-4

RATIONALE:

Right about here the plot thickens. It has the thickness of a house placed upon it. If you're at the right place in your drafting studies, you're ready to place a house on a lot.

You have now completed drawing the floor plan, including dimensions. The next step is placing the house on a plot. The architect does this so the contractor and other workmen can get a picture of how the residence sits on the lot or plot. Other people find the need for a plot plan. The different utility companies may use a plot to locate poles, mains and water lines. The plot plan has to be drawn correctly, because so many people are dependent upon the information contained in the plan. "You should have no trouble with this task package if you have plotted your course accurately."

OBJECTIVE:

Upon completion of this task package you will be able to place a residence on a plot using appropriate symbols. Your performance will be evaluated as specified in Unit 35 of Architectural Drafting and Design and in accordance with the instructor's checklist.

LEARNING ACTIVITY:

1. View sound-slide presentation _____, which has an interesting plot.
2. Read Unit 35, pages 246 - 249, in Architectural Drafting and Design.
3. How are plot plans used? _____
4. What is shown on a plot plan? _____
5. Study figure 35.1 on page 247 in your textbook.
6. Are contour lines shown on a plot plan? _____
7. How far is the house from the east side of the lot?
8. What are the outer dimensions of the house?

LEARNING ACTIVITY (cont'd):

9. Study figure 35.2 on page 247 in your textbook.

10. How far is the house from the western property line? _____

11. What are the outer dimensions of the house? _____

_____

12. Study figure 35.3 on page 248 in your textbook.

13. What do the dotted lines represent? _____

_____

14. What is the height of the brick fence? _____

15. Keep these task packages rolling along. Take your answers to the instructor.

LEARNING PRACTICE:

DIRECTIONS: Read the entire Learning Practice before starting to work.

1. Obtain one sheet of 8 1/2 x 11 paper from your instructor. He will also provide you with the proper layout.

2. Turn to page 249 in Architectural Drafting and Design. Study figure 35.7.

3. Place the outline of the residence you have drawn in package 2 of this unit on the plot plan in figure 35.7.

   a. Prepare your paper using the proper layout.

   b. Use the appropriate symbols and remember the house should be oriented.

   c. Dimension the plot plan. Use the scale shown in figure 35.7.

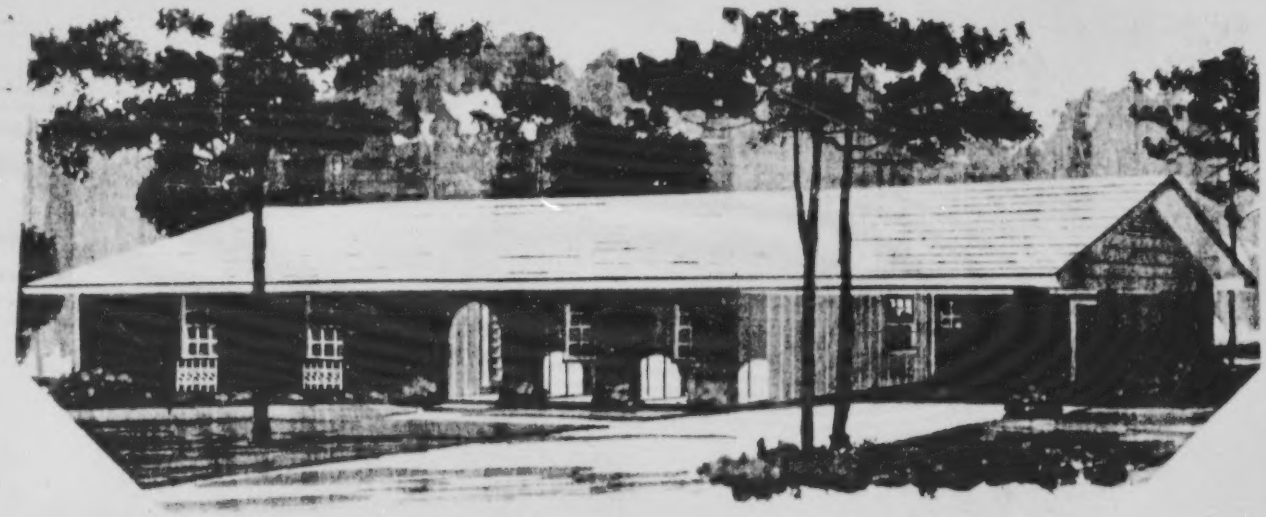
You really love success, don't you - and why not!! Take your work to the instructor for an evaluation.

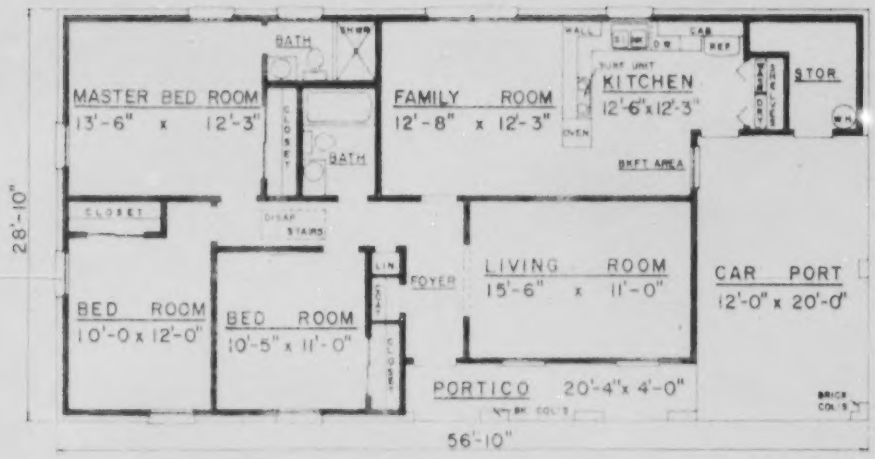
RESEARCH PROJECT

SANFORD CENTRAL HIGH SCHOOL

1708 NASH STREET

SANFORD, NORTH CAROLINA 27330






CLUSTER: DRAFTING

COURSE: ARCHITECTURAL DRAFTING

CED03934 (d)

DA-IV

UNIT PACKAGE IV: FOUNDATION AND FOOTING DETAILS

PREREQUISITES: UNITS I-III

RATIONALE:

When you build, build on a strong foundation. A structure needs a good foundation. The architectural draftsman is concerned with the foundation and how it is used to support a building effectively. The draftsman must know the type of foundation and the situation in which each should be used.

You will have the opportunity of developing the skill of drawing the types of foundations in this unit. You will use the skills to plan a foundation for your own design. "So firm up your ideals and let's pour the form for success in this unit."

OBJECTIVE:

GENERAL:

Upon completion of this unit package you will be able to identify and draw the different types of foundation. You will draw a foundation plan for your design in Unit III-2.

SPECIFIC:

Upon completion of the task packages for this unit, you will be able to:

1. Identify, by writing from illustrations, the foundation members and symbols used in foundation and footing details.

OBJECTIVES (cont'd):

a. "T" foundation.

b. slab foundation.

c. pier and column foundation.

Your performance for both identification and drawing will be evaluated in accordance with the instructor's checklist.

2. Draw a foundation and footing plan for a given residence, using appropriate symbols and scales. Your performance will be evaluated from criteria specified in Units 40, 41, and 42 in Architectural Drafting and Design and in accordance with the instructor's checklist.

LEARNING ACTIVITY:

In order to complete this unit successfully you should begin your work on task package 1, and then as a suggestion, proceed to complete each task package in order, until you have finished each package in this unit. In the packages you will be asked to view a sound-slide presentation, read and answer questions, and perform some practical exercises. The number and names of the task packages included in this unit are as follows:

TASK PACKAGE 1: IDENTIFYING MEMBERS AND DRAWING FOUNDATION AND FOOTING

TASK PACKAGE 2: DRAWING A FOUNDATION PLAN

OBJECTIVES (cont'd):

If you should feel confident enough to pass a comprehensive test at this time, contact your instructor. However, should you feel you are not ready to be tested, begin your work as outlined above.

DA-IV-1

UNIT IV: FOUNDATION AND FOOTING DETAILS

TASK PACKAGE 1: IDENTIFICATION OF MEMBERS AND DRAWING FOUNDATION AND FOOTING

PREREQUISITES: UNITS I, II, III

RATIONALE:

Without the proper foundation, you can't build anything. If you try to construct a building without an adequate support, it quickly becomes topsy-turvy. So learn about foundations and footing here.

The structure must have a good, strong foundation. This package will help you become familiar with the three types of foundations and the reasons for their use. The architectural draftsman needs to be very familiar with foundations and the methods of drawing them. You need to know what is represented on a foundation drawing. The foundation provides the support for a residence. This task package will provide the support for your successful completion of the Objective.

OBJECTIVE:

Upon completion of this task package you will be able to identify, by writing from illustrations, the foundation members and symbols used in foundation and footing details. You will be able to draw foundation types of the following:

a. "T" foundation.

b. slab foundation.

c. pier and column foundation.

Your performance will be evaluated in accordance with the instructor's checklist.

LEARNING ACTIVITY:

1. View sound-slide presentation DA - IV - 1, starring Pierre Slau.
2. Read Units 40, 41 and 42 on pages 277 - 287 in Architectural Drafting and Design.
3. Why does a structure need a foundation? _____ _____

   _____

4. List ten members of a foundation? _____ _____

   _____ _____ _____

   _____ _____

LEARNING ACTIVITY (cont'd):

5. What is the purpose of the footing? _____

_____

6. What is the purpose of the foundation wall? _____

_____

7. What is the function of piers and columns? _____

_____

8. Describe the relationship between anchor bolts and the sill.

_____

_____

9. What is a post? _____

_____

10. Define a cripple. _____

_____

11. What is the relationship between girders and steel beams?

_____

12. What is the function of a joist? _____

_____

13. What are the three types of foundations? _____

_____

14. What conditions and factors determine the type of foundation construction?

15. Have you prepared a strong foundation by completing this Learning Activity? Take your answers to the instructor.

LEARNING PRACTICE:

DIRECTIONS: Read the entire Learning Practice before starting to work.

1. Obtain a sheet of 8 1/2 x 11 paper from the instructor. He will also provide you with the proper layout to use.
2. Turn to page 6 in this task package.
   a. Study figure one.
   b. Complete the blanks by filling in the names of the correct numbers of the "T" foundation.
3. Turn to page 7 in this task package.
   a. Study figure two.
   b. Complete the blanks by filling in the names of the correct numbers of the slab foundation.
4. Turn to page 8 in this task package.
   a. Study figure three.
   b. Complete the blanks by filling in the names of the correct numbers of the pier foundation.
5. Drawing types of foundations.
   a. Prepare your paper.
   b. Draw a section view of the following types of foundation:
      1. "T"
      2. slab
      3. pier

LEARNING PRACTICE (cont'd):

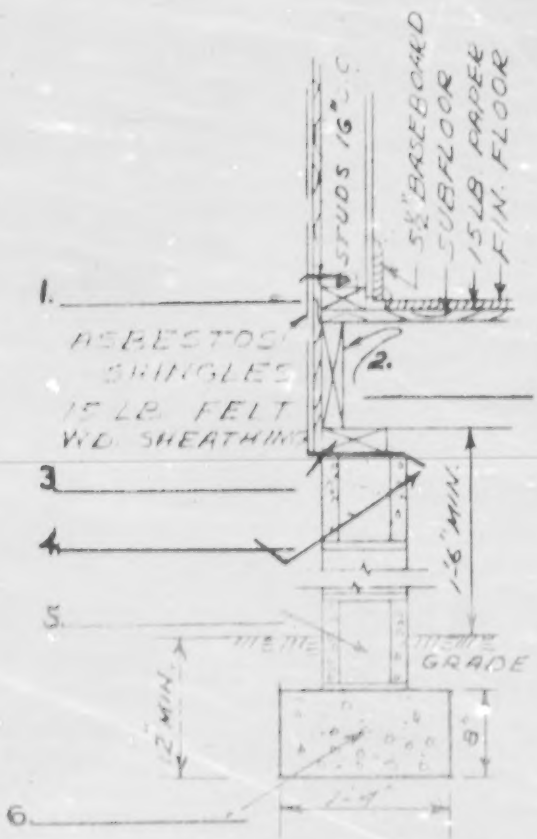
c. Use figure 41-5 on page 283 and draw the section for an exterior wall.

d. Use figure 41-3 on page 281 and draw the section for a "T" foundation (exterior wall) and a pier.

e. Use a scale 2" = 1' - 0". Place all three views on the same sheet of paper, being neat and orderly.

Your knowledge of "T", slab, column, and pier will help make you an outstanding draftsman among your peers.

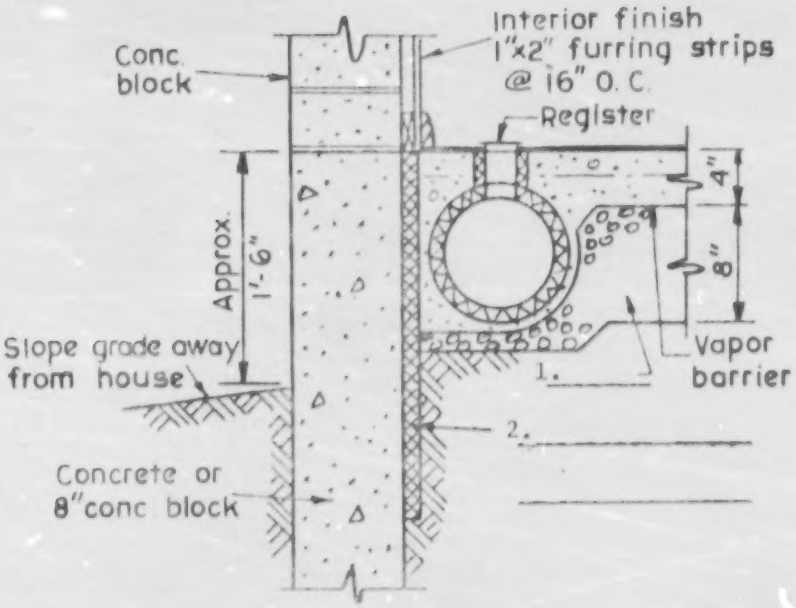
IDENTIFY MEMBERS OF A "T" FOUNDATION



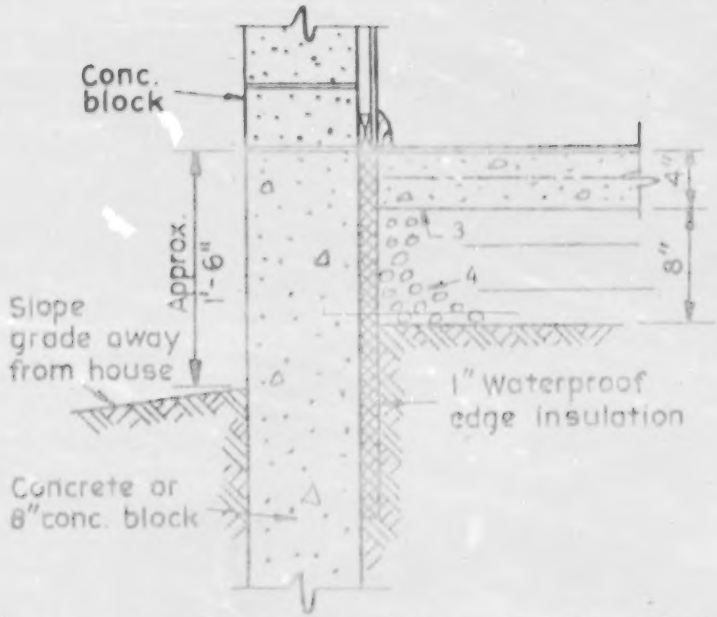

FOUNDATION DETAIL
SCALE: 3/4" = 1'-0"

Figure 1

IDENTIFY MEMBERS OF A SLAB FOUNDATION




TYPICAL DETAIL OF PERIMETER HEATING LINE
Scale: 1"=1'-0"




ALTERNATE DETAIL IF PERIMETER HEATING SYSTEM IS NOT USED
Scale: 1"=1'-0"

Figure 2

IDENTIFY MEMBERS OF A PIER FOUNDATION

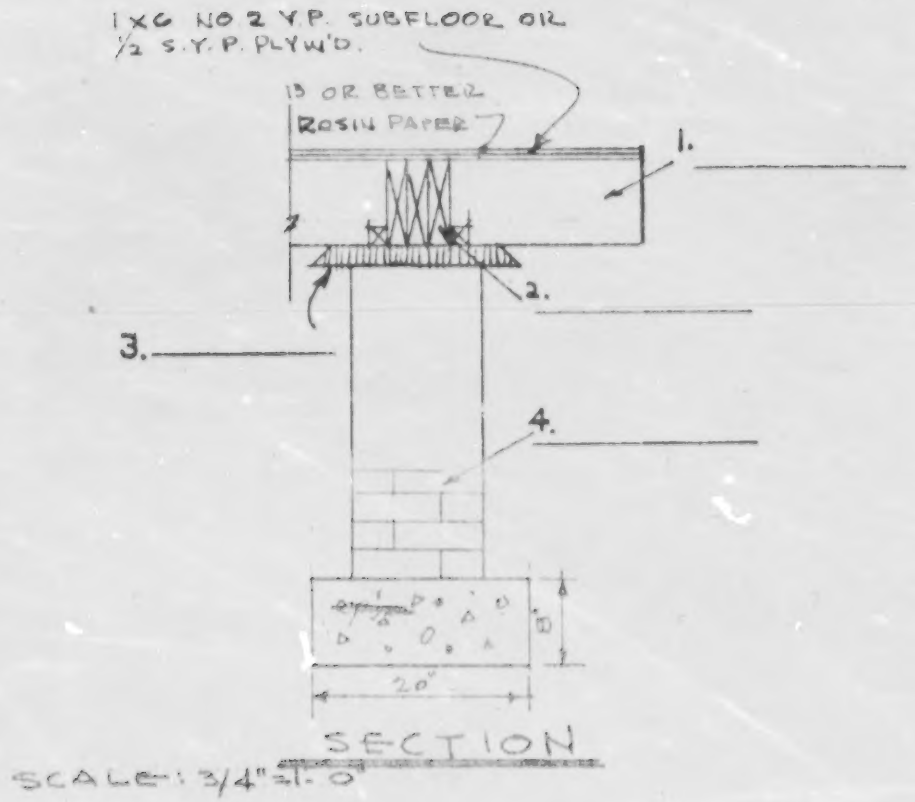



Figure 3

DA-IV-2

UNIT IV: FOUNDATION AND FOOTING DETAILS

TASK PACKAGE 2: DRAWING A FOUNDATION PLAN

PREREQUISITES: UNITS I, II, III; UNIT IV, TASK PACKAGE 1

RATIONALE:

Draw all your attention here to a suitable foundation for your house. This involves drawing together your drawing skills and then drawing a foundation plan.

Your residence is moving along. The next step is to place the floor plan on something stable. "No, not the kind a horse stays in." The house must have a strong foundation. The architectural draftsman must be able to draw a foundation plan and also have a fluent vocabulary for expressing his thoughts graphically. You completed the last package about the types of foundations. This package gives you the necessary material to place the foundation and the floor plan into one unit. "Build a strong foundation of skills by completing this package."

OBJECTIVE:

Upon completion of this task package you will be able to draw a foundation and footing plan for a given residence using appropriate symbols and scales. Your performance will be evaluated from criteria specified in Units 40, 41 and 42 in Architectural Drafting and Design and in accordance with the instructor's checklist.

LEARNING ACTIVITY:

1. View slide-sound presentation _____, starring the Footer.
2. Review Units 40, 41 and 42 on pages 277 - 287 in Architectural Drafting and Design.
3. Study figure 41.2 on page 281 in your textbook.
4. How wide is the footing that is used in a "I" foundation?

   _____
5. How high is the foundation placed above ground level on the outside? _____
6. Study figure 40.8 on page 279 in your textbook.
7. What is a termite shield used for? _____

   _____
8. What is used to indicate the exact position of the excavation line, footer line and foundation wall line? _____

LEARNING ACTIVITY (cont'd):

9. What does excavation mean in reference to foundations?

_____

10. Turn to page 5 in this task package. This is a print of a foundation plan for a house. The foundation plan that you will draw will be similar. The type of foundation that you use will be determined by the style of house that you have created.

11. Looks as though you're pouring through this Learning Activity. Take your answers to the instructor.

LEARNING PRACTICE:

DIRECTIONS: Read the entire Learning Practice before starting to work.

1. Obtain two sheets of paper, one 8 1/2 x 11 and one 17 x 22, from your instructor. He will provide you with the layout to use on your paper.

2. Draw a foundation plan.

   a. Prepare your 8 1/2 x 11 paper.

   b. Turn to page 280 in Architectural Drafting and Design and study figure 40.13.

   c. Following the instruction provided in problem two on page 280 in your textbook, draw a foundation plan for figure 40.13.

   d. Dimension the foundation plan.

3. Draw a foundation plan for a given residence.

   a. Prepare your 17 x 22 paper, using the proper layout.

   b. Study the floor plan you drew in Unit III-2.

LEARNING PRACTICE (cont'd):

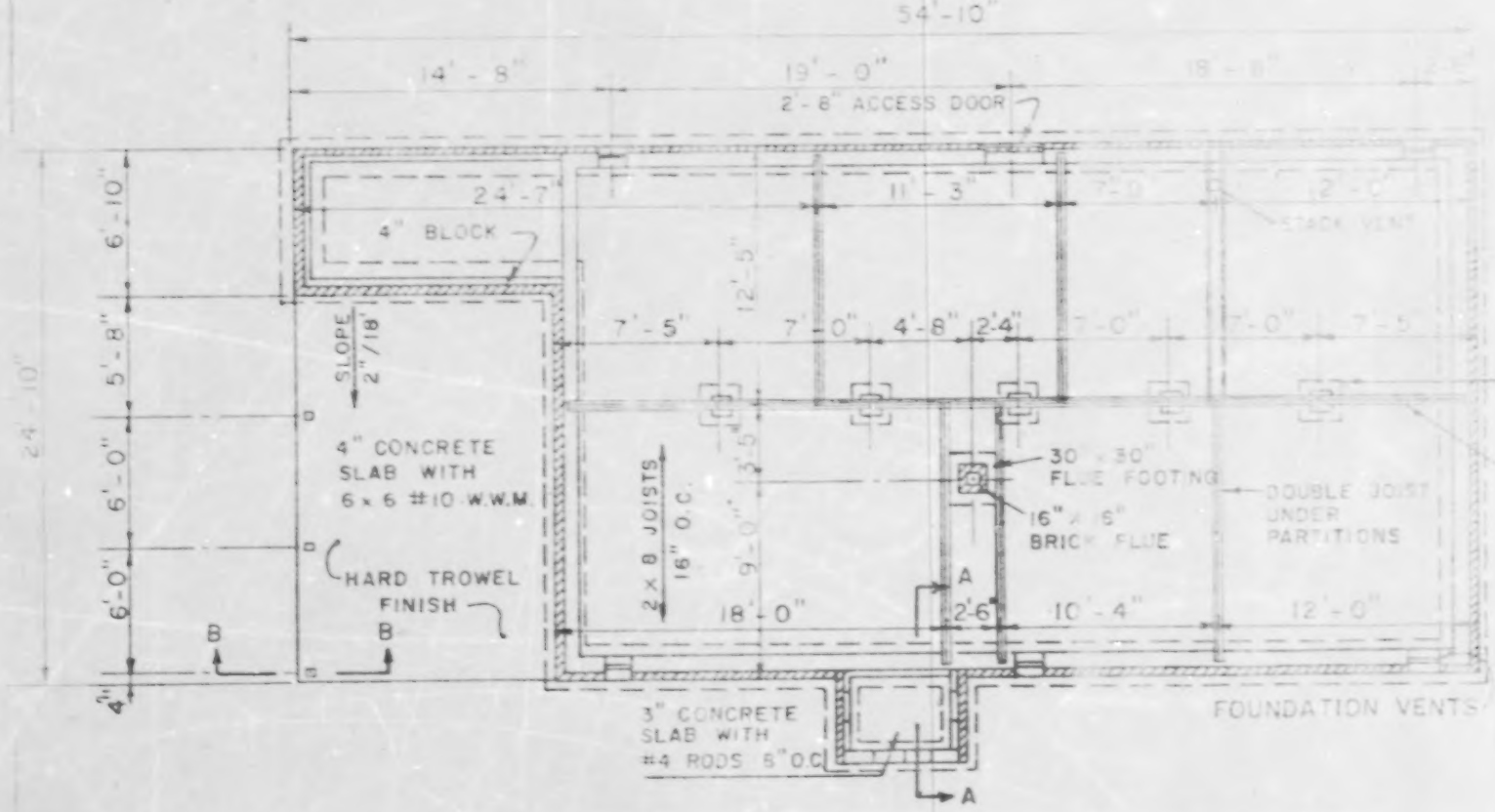
c. Draw a foundation plan for the residence drawn in Unit III-2.

c. Use appropriate symbols. A scale of 1/4" = 1' - 0".

Dimension the foundation plan.

Nobody makes it like you make it. So, take it to the instructor for an evaluation.

You're building a stable foundation for a career in drafting.




## FOUNDATION PLAN

SCALE 1/8" = 1'-0"

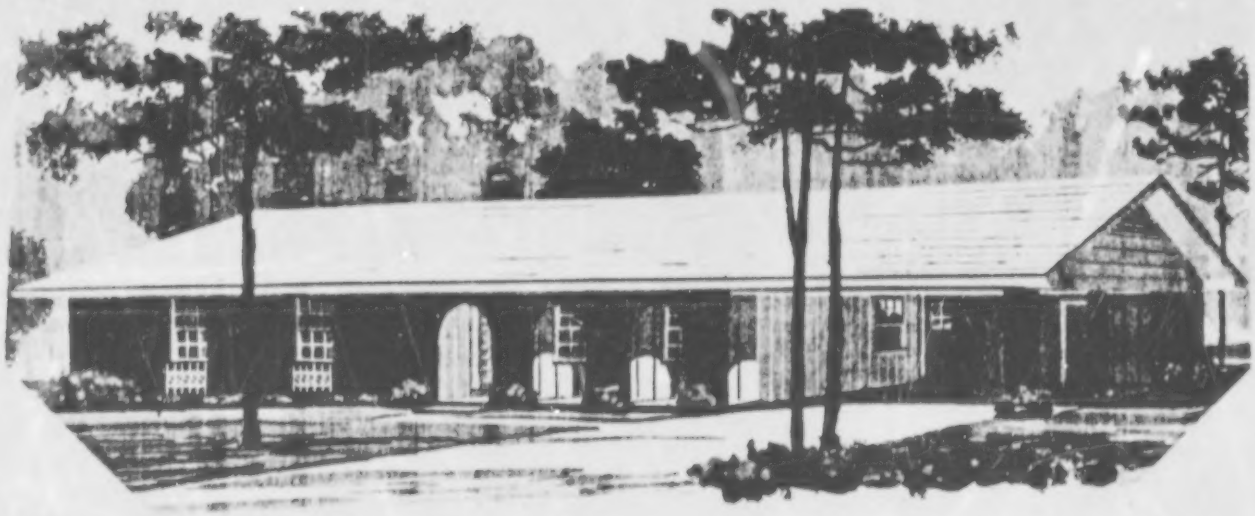
IA-IV-2

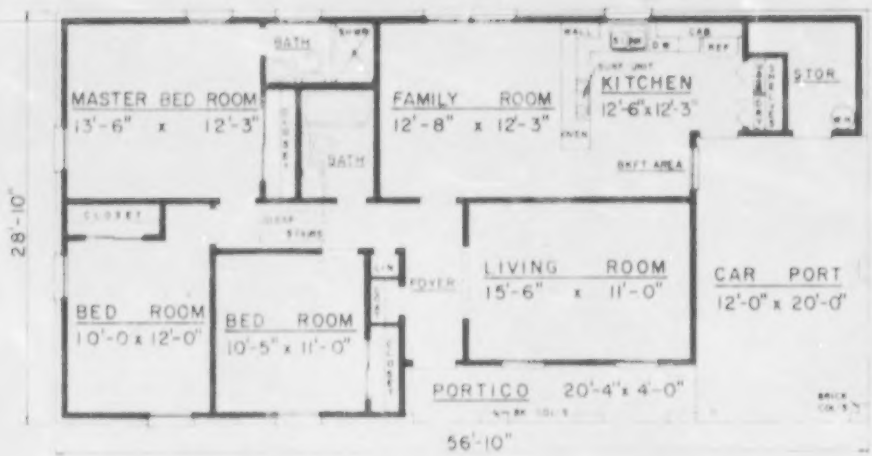
RESEARCH PROJECT

SANFORD CENTRAL HIGH SCHOOL

1708 NASH STREET

SANFORD, NORTH CAROLINA 27330






CLUSTER: DRAFTING

COURSE: ARCHITECTURAL DRAFTING

CE003934 (2)

DA-V

UNIT PACKAGE V: WALL AND RELATED DETAILED SECTIONS

PREREQUISITES: UNITS I-IV

RATIONALE:

This unit will take you into the world of wall and related detailed sections. The architectural draftsman should know of the various types of wall that can be set on a foundation. The draftsman needs to know why a certain wall is used in preference to some other type of wall. The architectural draftsman should have the knowledge of how to draw door and window sections when seen in a wall. This information is vital for the contractor and the workmen who will be working on the construction site.

Don't wall yourself in; build a wall of success for your accomplishment of this unit.

OBJECTIVES:

General:

Upon completion of this unit package you will be able to draw various types of wall sections that are used in the construction of a residence. You will be able to draw door and window sections in walls.

Specific:

Upon completion of the task packages for this unit, you will be able to:

1. Identify by writing, from an illustration, members of a wall section used in architectural drafting. Your performance will be

OBJECTIVES (cont'd):

evaluated in accordance with the instructor's checklist.

2. Draw a solid sill in section using correct symbols and scale. Your performance will be evaluated in accordance with the instructor's checklist.
3. Draw a wall section of box sill construction with frame backing, using appropriate symbols and scale. Your performance will be evaluated in accordance with the instructor's checklist.
4. Draw a wall section of box sill construction with brick veneer, using frame backing and appropriate symbols and scale. Your performance will be evaluated in accordance with the instructor's checklist.
5. Draw a wall section for a given residence using correct symbols and scale. Your performance will be evaluated from criteria specified in Unit 39, Architectural Drafting and Design, and in accordance with the instructor's checklist.
6. Draw a section of a double hung window and identify the following:
   a. head and sill.
   b. right and left jambs.

   Your performance will be evaluated from criteria specified in Unit 39, Architectural Drafting and Design, and in accordance with the instructor's checklist.

OBJECTIVES (cont'd):

7. Draw an outside door and identify the following:

   a. head and sill.

   b. right and left jambs.

   Your performance will be evaluated from criteria specified in Unit 39, Architectural Drafting and Design, and in accordance with the instructor's checklist.

LEARNING ACTIVITY:

In order to complete this unit successfully you should begin your work on Task Package 1, and then as a suggestion proceed to complete each task package in order until you have finished each package in this unit. In the packages you will be asked to view a sound-slide presentation, read and answer questions, and perform some practical exercises. The number and names of the task packages included in this unit are as follows.

TASK PACKAGE 1: IDENTIFICATION OF MEMBERS OF A WALL SECTION

TASK PACKAGE 2: DRAWING A WALL SECTION OF A SOLID SILL

TASK PACKAGE 3: DRAWING A WALL SECTION OF BOX SILL WITH FRAME BACKING

TASK PACKAGE 4: DRAWING A WALL SECTION OF BOX SILL CONSTRUCTION WITH BRICK VENEER

TASK PACKAGE 5: DRAWING A WALL SECTION OF A GIVEN RESIDENCE

TASK PACKAGE 6: DRAWING A SECTION OF A DOUBLE-HUNG WINDOW

TASK PACKAGE 7: DRAWING AN OUTSIDE DOOR

LEARNING ACTIVITY (cont'd):

If you should feel confident enough to pass a comprehensive test at this time, contact your instructor. However, should you feel you are not ready to be tested, begin your work as outlined above.

DA-V-1

UNIT V: WALL AND RELATED DETAILED SECTIONS

TASK PACKAGE 1: IDENTIFICATION OF MEMBERS OF A WALL SECTION

PREREQUISITES: UNITS I, II, III, IV

RATIONALE:

You've heard about the legendary "four walls" of the housewife, haven't you? Did you know that they come in different types of sections? And that each kind performs a particular function? Learn about them here.

The architectural draftsman needs to know the types of wall sections that can be used in building a structure. Each particular type of section performs a function of some sort. The draftsman needs to know how to relate the wall sections and the sills with the foundation and the cornice. Each element of the construction process builds on the one before. They all tie in for a strong, long-lasting structure. Let these task packages tie in together to give you a strong and long-lasting skill. "Don't sit in a section; just merely fill in with the sill."

OBJECTIVE:

Upon completion of this task package you will be able to identify by writing, from an illustration, members of a wall section used in architectural drafting. Your performance will be evaluated in accordance with the instructor's checklist.

LEARNING ACTIVITY:

1. View slide-sound presentation _____, featuring Wall Flower.
2. Read Unit 37, pages 267 - 270, in Architectural Drafting and Design.
3. Study figure 39.2 on page 268 in your textbook.
4. Notice the break lines used in the illustration. Are these long or short break lines?

   _____

5. Study figure 39.3 on page 268 in your textbook.
6. What is a removed section? _____

   _____

7. Study figure 39.4 and 39.5 on page 268 in your textbook.
8. What are the parts of the brick veneer sill section? _____

   _____

   _____

LEARNING ACTIVITY (cont'd):

9. What are the parts of the frame sill section? _____

_____

10. What are the parts of the solid brick sill section? _____

_____

11. Study figure 39.6 on page 269 in your textbook. Notice the difference in width of the frame foundation wall as compared to the brick veneer foundation wall.

12. Study figure 39.8 on page 269 in your textbook. Notice the sizes of the members of a built-up wood girder.

13. Study figure 39.12 on page 270 in your textbook.

14. Here you have the opportunity to see the sectional view of a wall, and beside it is the pictorial view.

15. Do you think you will sign up this Learning Activity?

Take your answers to the instructor.

LEARNING PRACTICE:

DIRECTIONS: Read the entire Learning Practice before starting to work.

1. List the members of a given box sill wall section.

   a. Turn to page 4 in this task package.

   b. Study figure one.

   c. Identify the members of the given wall section by listing the names in the blank space provided.

LEARNING PRACTICE (cont'd):

2. List the members of a given solid sill wall section.

   a. Turn to page o in this task package.

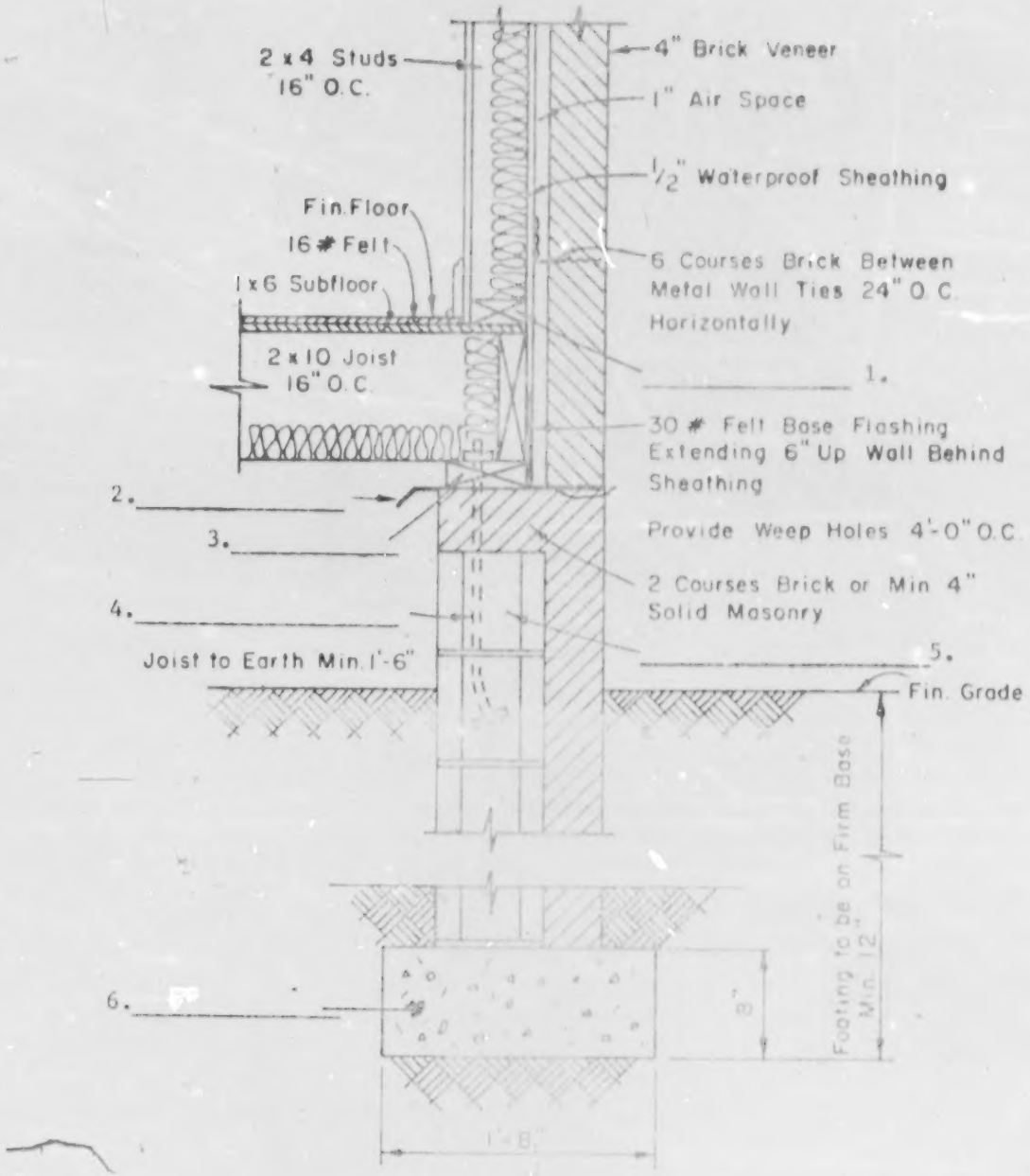
   b. Study figure two.

   c. Identify the members of the given wall section by listing the names in the blank spaces provided.

Don't wall yourself in. Expand your horizon with new drafting skills.

DA-V-1

5




TYPICAL WALL SECTION

SCALE 1" = 1'-0"

MEMBERS OF THE SOLID SILL

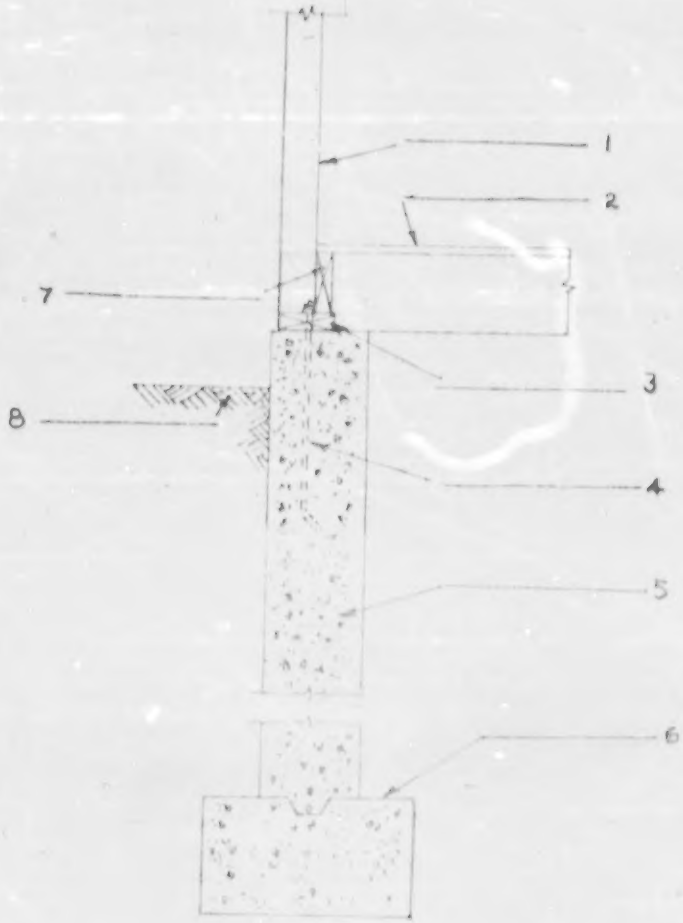



Figure 2

DA-V-2

UNIT V: WALL AND RELATED DETAILED SECTIONS

TASK PACKAGE 2: DRAWING A WALL SECTION OF A SOLID SILL

PREREQUISITES: UNITS I, II, III, IV; UNIT V, TASK PACKAGE 1

RATIONALE:

Here's your chance to sink your teeth into something solid. That may be a silly thing to say, but we're dealing with a solid sill. A solid sill is not silly. It's solid.

Most of the contractors today use the box sill for constructing buildings. However, it is important that you, as an architectural draftsman, be concerned with the other type of sill. The other kind of sill is called the solid sill. Some people refer to it as Western framing. This sill has all the members that the box sill has, except that they may follow a different order as far as the sequence of construction. "If you were out West, maybe someone would frame you, but here all we want is to get in solid with this task package."

OBJECTIVE:

Upon completion of this task package you will be able to draw a solid sill in section using correct symbols and scale. Your performance will be evaluated in accordance with the instructor's checklist.

LEARNING ACTIVITY:

1. View slide-sound presentation _____, starring Soupy Sills.
2. Read Unit 39, pages 267 - 276, in Architectural Drafting and Design.
3. Do you know the difference between a solid sill and a box sill?
4. Study figures one and two on page 4 in this task package.
5. Do you notice the difference now? Good!
6. Look carefully at the footing in both illustrations. The width of the footing is 1 1/2 times more than the depth.
7. The depth of the footing is determined by the frost line. What is the frost line? Check your textbook or other references to find out.
8. Check with your instructor.

LEARNING PRACTICE:

DIRECTIONS: Read the entire Learning Practice before starting to work.

1. Obtain a sheet of 8 1/2 x 11 paper from your instructor. He will provide you with the proper layout to use.
2. Draw a solid sill in section.
   a. Prepare your paper using the proper layout.
   b. Turn to page 4 in this task package.

LEARNING PRACTICE (cont'd):

c. Using the scale provided, draw a section of a solid sill exactly like the illustration. Use the same dimensions.

d. Label and dimension the section as done in the illustration.

Could you be in solid with this package on the sill? Take your work to the instructor for an evaluation and see.

You're doing some solid learning, and your future career in drafting should be just as solid.

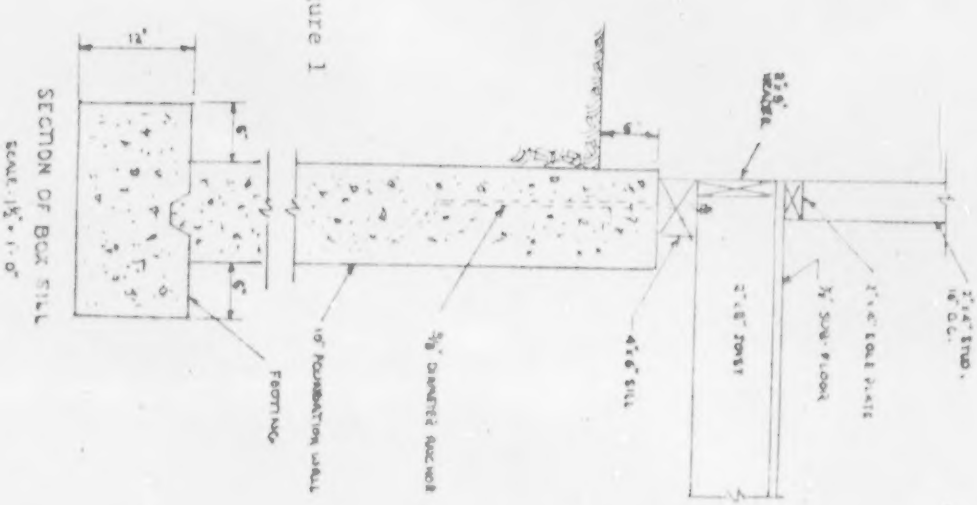



Figure 1

Figure 2

DA-V-3

UNIT V: WALL AND RELATED DETAILED SECTIONS

TASK PACKAGE 3: DRAWING A WALL SECTION OF BOX SILL WITH FRAME BACKING

PREREQUISITES: UNITS I, II, III, IV; UNIT V, TASK PACKAGES 1-2

RATIONALE:

Houses have many faces. They have wood faces, brick faces, and block faces. Now, you should face this fact and learn how to draw a wall sill with frame backing, which is one type of house face.

You have noticed that many houses have different facing materials: wood boards, brick, and block. The architectural draftsman has to be aware of the different products and how these products appear in a wall section. This task package will help you develop the skills of drawing a wall section with frame backing. The foundation is basically the same as for any other type of backing, but each method of combining these various techniques is different. "Frame-up on yourself and finish this package."

OBJECTIVE:

Upon completion of this task package you will be able to draw a wall section of a box sill construction with frame backing using appropriate symbols and scale. Your performance will be evaluated in accordance with the instructor's checklist.

LEARNING ACTIVITY:

1. View sound-slide presentation _____, starring Boxie Sill.
2. Read Unit 48, pages 340-344, in Architectural Drafting and Design.
3. Study figure 48.3 on page 341 in your textbook.
4. Note carefully how the section through the elevation relates to the pictorial view.
5. Does the section include any building paper in the views?

   _____
6. Read Unit 49, pages 345-360, in Architectural Drafting and Design.
7. Study figures 49.3 and 49.4 on page 346 in your textbook.
8. The roof is tied in through the wall to the foundation. You can see that the foundation serves as the support of the house.
9. Study figure 49.25 on page 353 in your textbook.
10. What is the roof pitch?
11. Study figures 49.29, 49.30, and 49.31 on page 354 in your textbook.

LEARNING ACTIVITY (cont'd):

12. How many types of tail-rafter cuts are there?

_____

13. Study figure 49.33 on page 355 in your textbook.

14. What are the four methods of overhang seen in this illustration?

_____

_____

15. Study figure 49.58 on page 364 in your textbook.

16. How many types of cornice framing details are there?

_____

17. Study figure 49.59 on page 365 in your textbook.

18. Identify the roof members shown in figure 49.59.

_____

_____

19. Read Unit 50, pages 366-371, in Architectural Drafting and Design.

20. Study figures 50.6, 50.7, 50.8 and 50.9 on page 369 in your textbook.

21. Did you think you would ever finish this Learning Activity? You did and you need to pat yourself on the back at least three times. No more than three, though. Take your answers to the instructor.

LEARNING PRACTICE:

DIRECTIONS: Read the entire Learning Practice before starting to work.

1. Obtain a sheet of 8 1/2 x 11 paper from the instructor. He will provide you with the proper layout to use.
2. Turn to page 5 in this task package. Study figure one.
3. What type of sill is used in this wall section?

_____

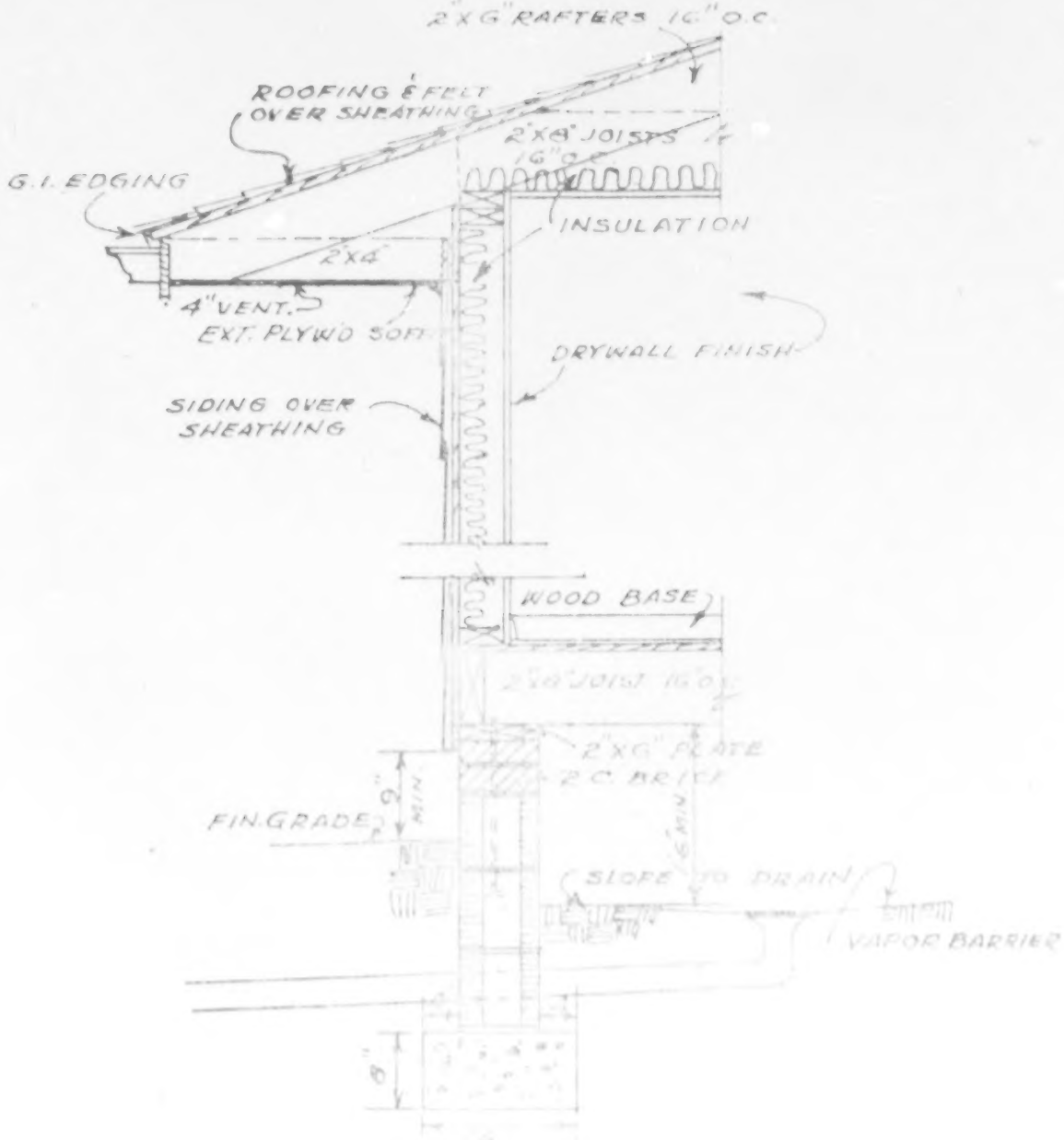
4. What type of foundation is used in this wall section?

_____

5. Draw a wall section.
   a. Prepare your paper using the appropriate layout.
   b. Draw the wall section in figure one on page 5 in this task package.
   c. Use the scale shown in figure one.
   d. Dimension and label your drawing just as in the illustration.

Do you have this package "framed up"? If you have, take your work to the instructor for an evaluation.

You're facing in the right direction - toward a prosperous career in drafting.




FRAME - WOOD FLOOR ... AND CEILING ...

DA-V-4

UNIT V: WALL AND RELATED DETAILED SECTIONS

TASK PACKAGE 4: DRAWING A WALL SECTION OF BOX SILL CONSTRUCTION WITH BRICK VENEER

PREREQUISITES: UNITS I-IV; UNIT V, TASK PACKAGES 1 - 3

RATIONALE:

Back away, now, from wood frame backing. Focus your attention on an additional element, brick veneer. Never fear - brick veneer is here.

The last package dealt with just wood frame backing. This package adds a new element, brick veneer. The architectural draftsman has to know how to represent brick veneer in section view. The relationship between the frame backing and the foundation is important also. The correct representation of wall sections is important, because the workmen, contractors and estimators use the wall section details for various jobs. "Success is near, when you finish this task package on veneer."

OBJECTIVE:

Upon completion of this task package you will be able to draw a wall section of box sill construction with brick veneer, using frame backing and appropriate symbols and scale. Your performance will be evaluated in accordance with the instructor's checklist.

LEARNING ACTIVITY:

1. View sound-slide presentation _____, starring Bricky Veneer.
2. Read Unit 46, pages 321 - 333, in Architectural Drafting and Design.
3. Study figure 46.6 on page 325 in your textbook.
4. Notice the footing and foundation in the illustration.
5. Study figure 46.11 on page 325 in your textbook.
6. What type sill construction is used in this illustration?

_____

7. Study figure 46.12 on page 326 in your textbook. This illustration has brick veneer backing.
8. Study figure 46.17 on page 328 in your textbook.
9. Notice the flashing that is used between the brick and the foundation.
10. What is the function of the flashing?

_____

LEARNING ACTIVITY (cont'd):

11. Study figures 46.18 and 46.19 on page 328 in your textbook.

12. What material is used for outside covering in figure 46.18?

_____

13. Study figure 46.23 on page 330 in your textbook.

14. What type foundation does this figure have? _____

_____

15. Study figure 46.28 on page 333 in your textbook. _____

_____

16. Notice the wall ties or anchors that are used to tie the brick or stone to the framing of the house.

17. Perry Masonry could not have solved the case of this Learning Activity as well as you did. Take your answers to the instructor.

LEARNING PRACTICE:

DIRECTIONS: Read the entire Learning Practice before starting to work.

1. Obtain a sheet of 8 1/2 x 11 paper from the instructor. He will provide you with the type layout to use.
2. Turn to page 5 in this task package and study figure one.
3. What material is used to face the building width? _____

_____

4. Why are the metal ties used? _____

_____

LEARNING PRACTICE (cont'd):

5. Draw a wall section with brick veneer.

   a. Prepare your paper using the proper layout.

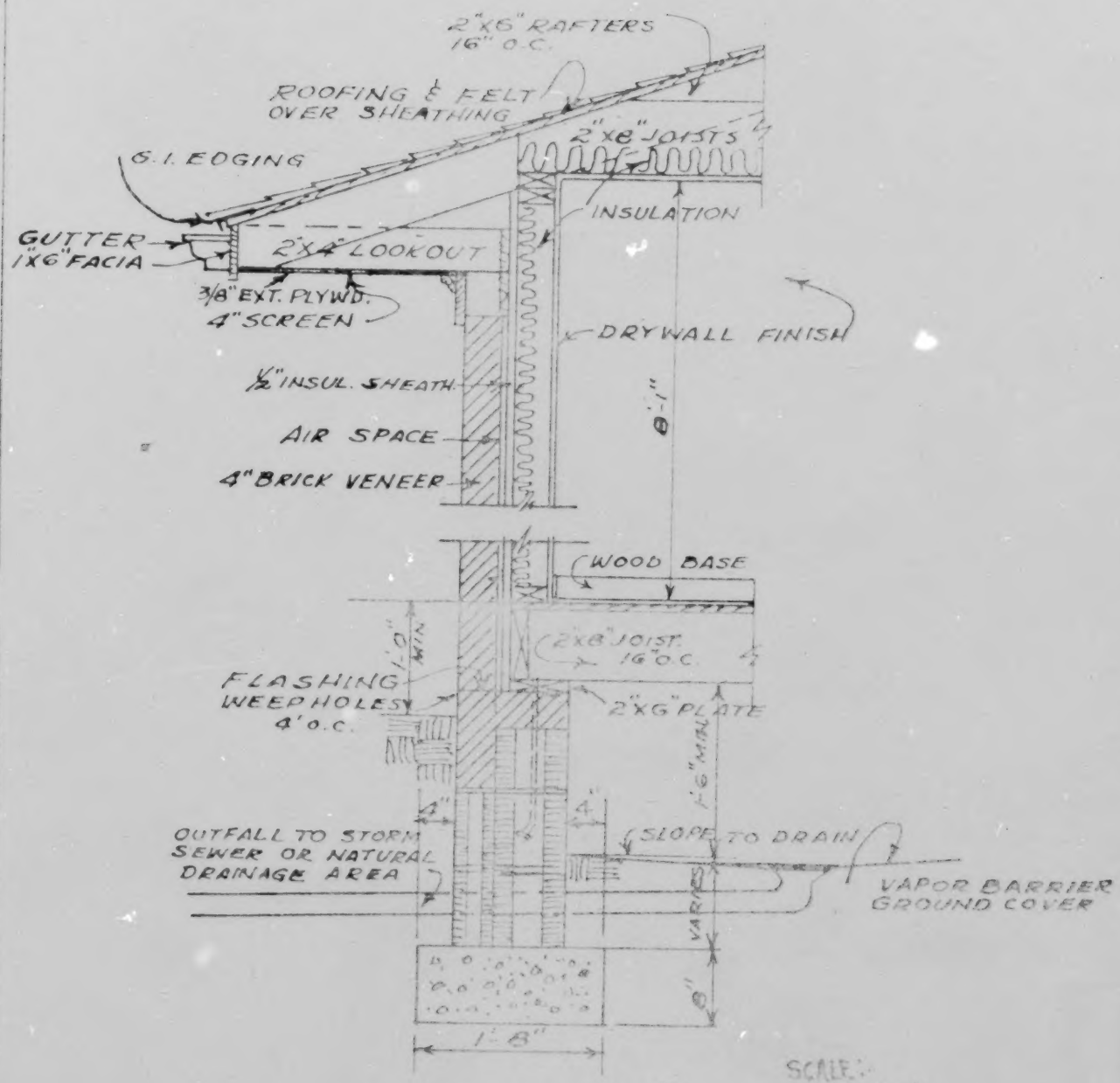
   b. Draw a wall section of box sill construction with brick veneer, using frame backing.

   c. Use the illustration in figure one on page 5 in this task package as a guide.

   d. Use the same dimensions and scale as in figure one.

   e. Label and dimension as shown in the illustration.

Give yourself good backing in life with comprehensive drafting skills.




SCALE: 3/4"=1'-0"

BRICK VENEER WITH CRAWL SPACE

Figure 1

DA-V-5

UNIT V: WALL AND RELATED DETAILED SECTIONS

TASK PACKAGE 5: DRAWING A WALL SECTION OF A GIVEN RESIDENCE

PREREQUISITES: UNITS I - IV; UNIT V, TASK PACKAGES 1 - 4

RATIONALE:

Don't wall your skills in at this point. You have more knowledge to accumulate, and here's a chance to add to your skills in handling walls as a draftsman.

The other packages on wall sections should have tuned your skills somewhat. You should now be ready to apply your knowledge and draw the required wall sections for your residence. Remember to be accurate in your graphical representations, because you do not want to misrepresent your ideas. This wall section will be an important piece of information not only to you for future drawings, but will give the instructor an idea of how you have done. Head 'em up -- move 'em out through this task package.

OBJECTIVE:

Upon completion of this task package you will be able to draw a wall section for a given residence using correct symbols and scale. Your performance will be evaluated from criteria specified in Unit 39, Architectural Drafting and Design, and in accordance with the instructor's checklist.

LEARNING ACTIVITY:

1. View sound-slide presentation _____.
2. Review Unit 39, pages 267 - 276, in Architectural Drafting and Design.
3. Study figure 39-1 on page 267 in your textbook. Note all the information that is supplied in this wall section.
4. Study figures 39-4 and 39-5 on page 268 in your textbook. Compare the sill and cornice sections.
5. Read Unit 45, pages 304 - 319, in Architectural Drafting and Design.
6. Study figure 45-4a on page 306 in your textbook.
7. Notice the masonry foundation and how the other elements of the illustration tie in with each other.
8. Study figure 45-5 on page 307 in your textbook.
9. Notice the adaptation of the pier to support the girder.

LEARNING ACTIVITY (cont'd):

10. Study figure 45-7 on page 308 in your textbook.
11. Study figure 45-16 on page 314 in your textbook.
12. Study figure 45-17 on page 315 in your textbook.
13. Study figure 45-18 on page 316 in your textbook.
14. Turn to page 5 in this task package. This is an isometric view of a box sill with some of the elements. You should have a good understanding of the different sills now.
15. Turn to page 6 in this task package. This is a typical overhang. You should now be familiar with the cornice and its element.
16. Now that you have studied your way through this Learning Activity, check with your instructor. "If you have knowledge to lend - your car he may want to bend."

LEARNING PRACTICE:

DIRECTIONS: Read the entire Learning Practice before starting to work.

1. Obtain the necessary amount of 17 x 22 paper from your instructor. He will also give you the proper layout to use.
2. Using your floor plan from Unit III - 2 and other information you may have, draw the necessary wall section for your residence.

   a. Use a scale of 1" = 1' - 0".

LEARNING PRACTICE (cont'd):

b. Dimension and label all sections.

c. If you have more than one section, place as many as you can on one sheet of paper.

d. The wall section should include footing, foundation, sill, wall and cornice.

Stay loose as a goose cause you're through with this package. Take your work to the instructor for an evaluation.

You're designing firm walls of knowledge to house your drafting skills.

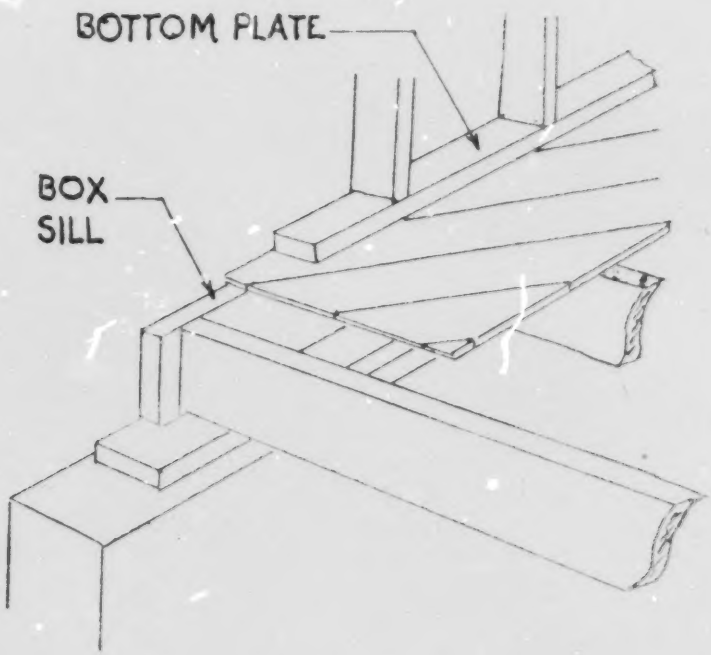



Figure 1

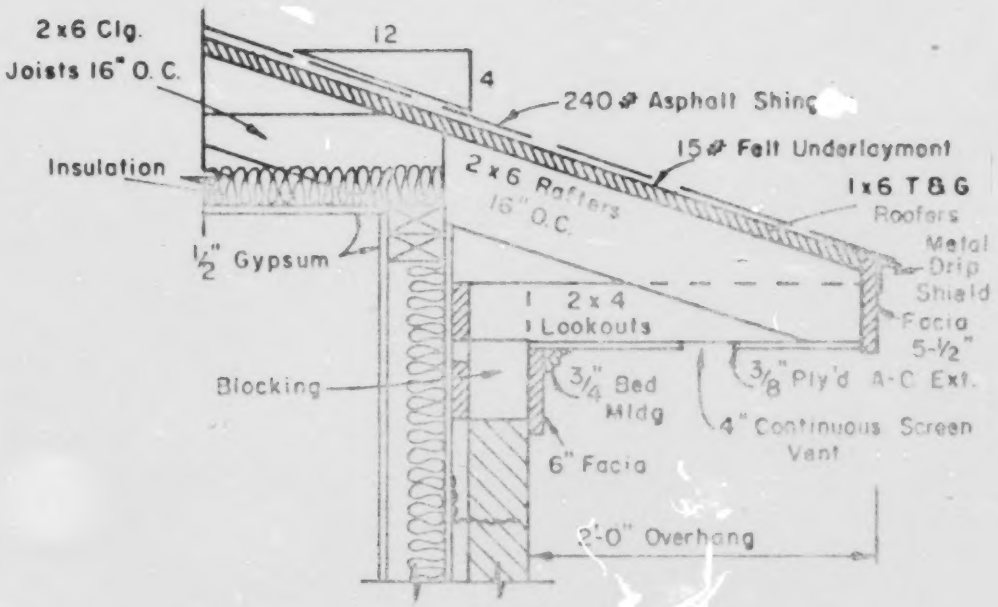

2x6 Clg.
Joists 16" O.C.
12
4
240# Asphalt Shing
15# Felt Underlayment
Insulation
2x6 Rafters
16" O.C.
1x6 T&G
Roofers
Metal
Drip
Shield
½" Gypsum
1 2x4
Lookouts
Facia
5-½"
Blocking
¾" Bed
Mldg
⅜" Ply'd A-C Ext.
4" Continuous Screen
Vent
6" Facia
2'-0" Overhang

Figure 2

DA-V-6

UNIT V: WALL AND RELATED DETAILED SECTIONS

TASK PACKAGE 6: DRAWING A SECTION OF A DOUBLE-HUNG WINDOW

PREREQUISITES: UNITS I - IV: UNIT V, TASK PACKAGES 1 - 5

RATIONALE:

You'll be a head of the game and out of a jamb by finishing this task package. This package will help you develop the skills of identifying the parts of a window and then drawing the window correctly in elevation and section views. The architectural draftsman needs to know how to draw section views of a window. There are different types of windows, but all are basically the same. "Looking through this package will provide you with an opening in development of your skills."

OBJECTIVE:

Upon completion of this task package you will be able to draw a section of a double-hung window and identify the following:

a. head and sill.

b. right and left jamb.

Your performance will be evaluated from criteria specified in Unit 39, Architectural Drafting and Design, and in accordance with the instructor's checklist.

LEARNING ACTIVITY:

1. View sound-slide presentation _____, featuring D. H. Window.
2. Review Unit 39, pages 267 - 276, in Architectural Drafting and Design.
3. Study figure 39-17 on page 272 in your textbook.
4. The head is which part of the window? _____
5. The jamb is which part of the window? _____
6. The sill is which part of the window? _____
7. Study figure 39-18 on page 272 in your textbook. Notice how the 2 x 4's are doubled at the top and bottom of the window.
8. Study figure 39-20 on page 273 in your textbook. Notice again that the window has been framed with 2 x 4's.
9. Study figure 39-21 on page 273. What parts of the window are shown? _____
10. Success is a by-product of hard work. Take your answers to the instructor.

LEARNING PRACTICE:

DIRECTIONS: Read the entire Learning Practice before starting to work.

1. Obtain a sheet of 8 1/2 x 11 paper from your instructor. He will also provide you with the proper layout to use.
2. Turn to page 4 in this task package.
   Identify by filling in the blank the parts of a window.
3. Turn to page 5 in this task package.
4. Study figure two.
5. Draw all views shown in the illustrations on page 5 in this task package.
   a. Prepare your paper using the proper layout.
   b. Use the scale shown on the illustration.
   c. Label and dimension each view.
   d. If you have any difficulty seek aid from the instructor.

You didn't find yourself in a jamb. Take your work to the instructor so he can evaluate it.

Drawing sections of double-hung windows can open the windows on new drafting skills.

IDENTIFYING PARTS OF A WINDOW

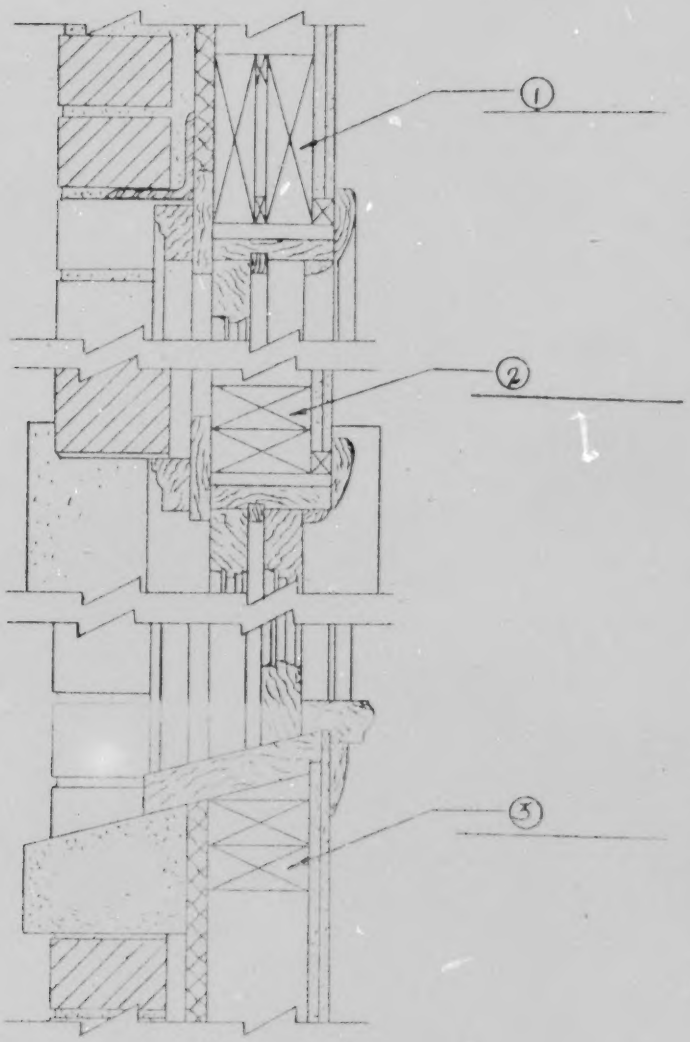
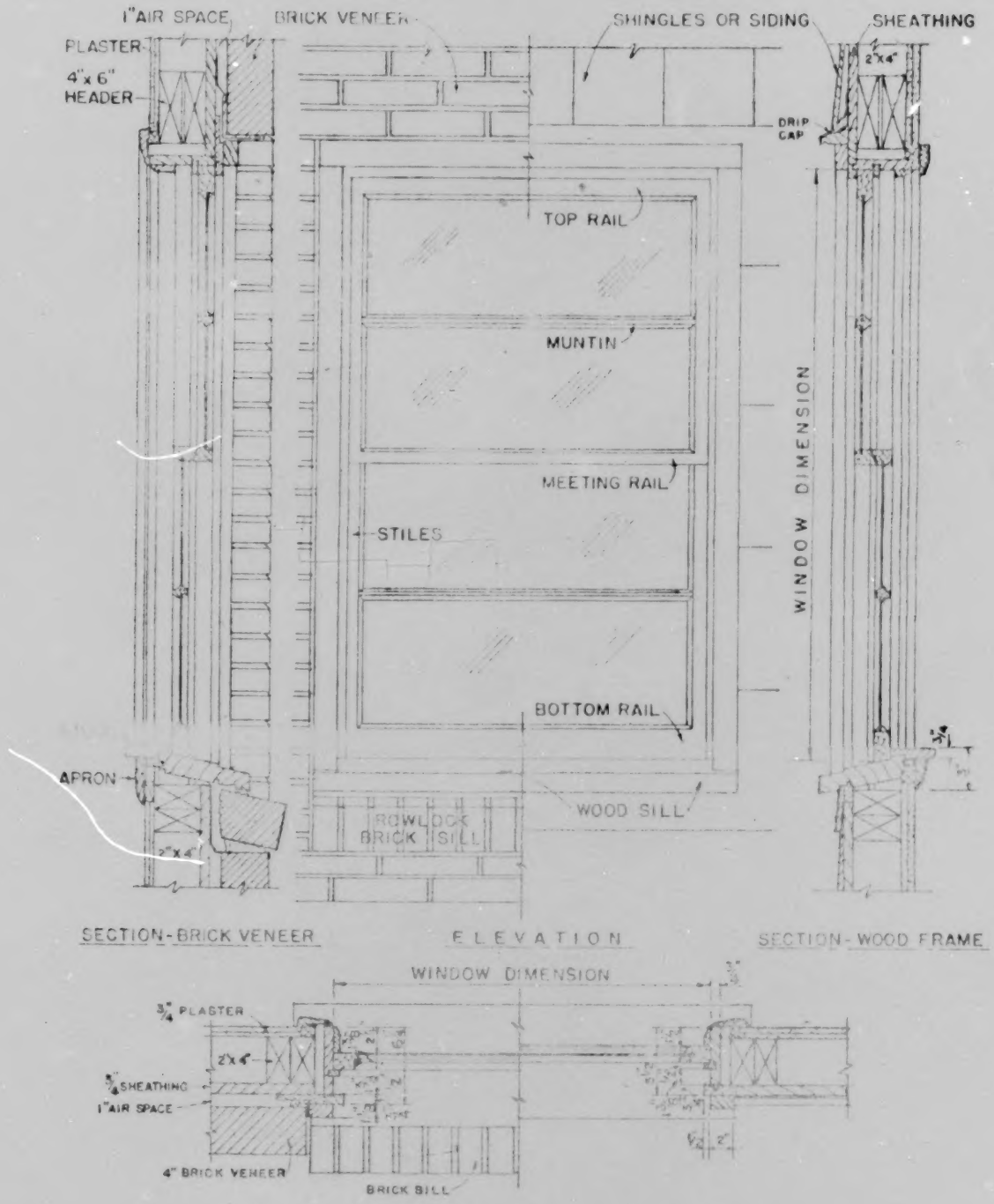



Figure 1

# VIEWS OF A WINDOW




SCALE:
1 1/2" = 1'-0"

Figure 2

DA-V-7

UNIT V: WALL AND RELATED DETAILED SECTIONS

TASK PACKAGE 7: DRAWING AN OUTSIDE DOOR

PREREQUISITES: UNITS I-IV; UNIT 5, TASK PACKAGES 1 - 6

RATIONALE:

Doors close and doors open. You can open the door to success by finishing this task package. The architectural draftsman has to know the parts of a door and how they are represented graphically. Although many doors are different in looks, they all have common methods of being hung to a doorway. This package will help you achieve the skill of drawing doors in sections. "Opportunity knocks but once -- make sure your door will open so you may have the opportunity of completing this package."

OBJECTIVE:

Upon completion of this task package you will be able to draw an outside door and identify the following:

a. head and sill.

b. right and left jamb.

Your performance will be evaluated from criteria specified in Unit 39, Architectural Drafting and Design, and in accordance with the instructor's checklist.

LEARNING ACTIVITY:

1. View sound-slide presentation _____.
2. Review Unit 39, pages 267 - 276, in Architectural Drafting and Design.
3. Study figure 39.23 on page 274 in your textbook.
4. What are the three parts to a door? _____

_____

5. What types of parts are shown in figure 39.24 on page 274? ___

_____

6. Study figure 39.25 on page 275 in your textbook.
7. Study figure 39.26 on page 275 in your textbook.
8. Study figures 39.27 and 39.28 on page 275. Notice the sequence of construction for hanging a door in figure 39.28.
9. Review Unit 46, pages 321 - 333, in Architectural Drafting and Design.
10. Study figure 46.27 on page 332 in your textbook.
11. What is the size of stock used to frame up the rough door opening? _____
12. Finish another Learning Activity? Good for you. Take your answers to the instructor.

LEARNING PRACTICE:

DIRECTIONS: Read the entire Learning Practice before starting to work.

LEARNING PRACTICE (cont'd):

1. Obtain a sheet of 8 1/2 x 11 paper from the instructor. He will provide you with the proper layout to use.
2. Turn to page 4 in this task package.
   a. Identify by listing in the blank spaces the parts of a door.
3. Turn to page 5 in this task package.
4. Study figure two.
5. Draw all views shown in the illustration on page 5 in this task package.
   a. Prepare your paper using the proper layout.
   b. Use a scale of 1 1/2" = 1' - 0".
   c. Label and dimension each view.
   d. If you have any unfamiliar word, ask from your instructor.

You may push the door of knowledge open when you turn the handle of work, and within you find success. Take your work to the instructor for an evaluation.

You're drawing closer to the door of success in carpentry.

IDENTIFYING PARTS OF THE DOOR

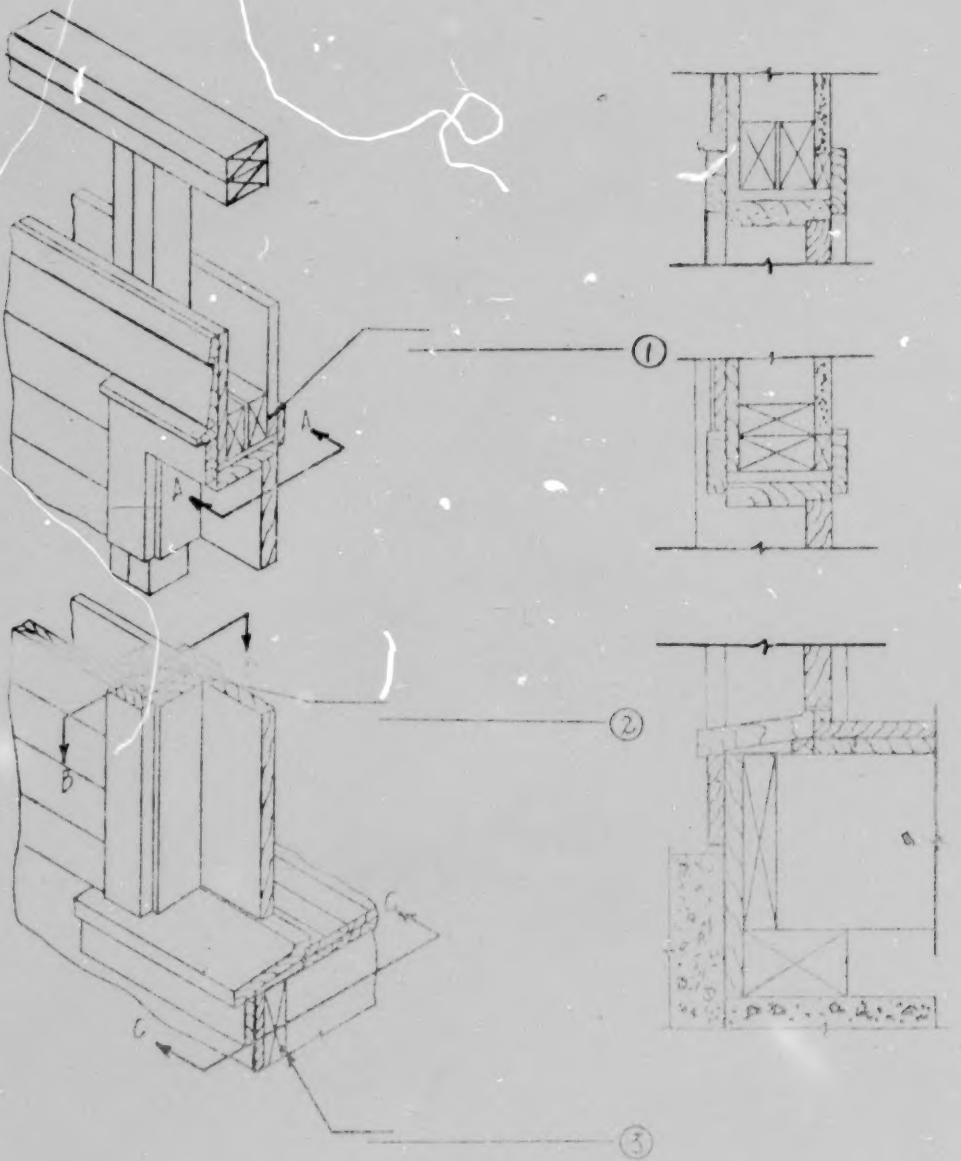



Figure 1

VIEWS OF AN EXTERIOR DOOR

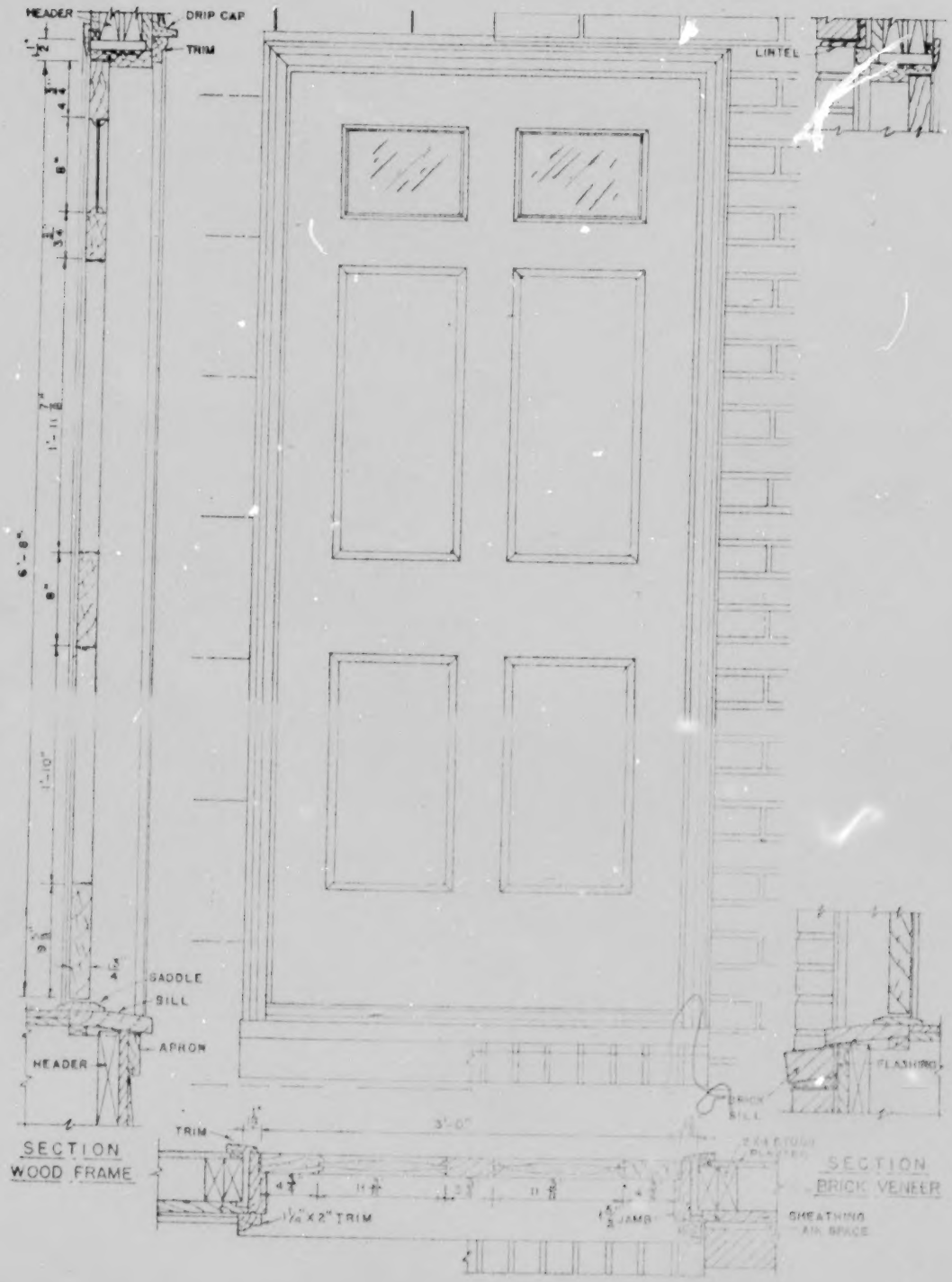


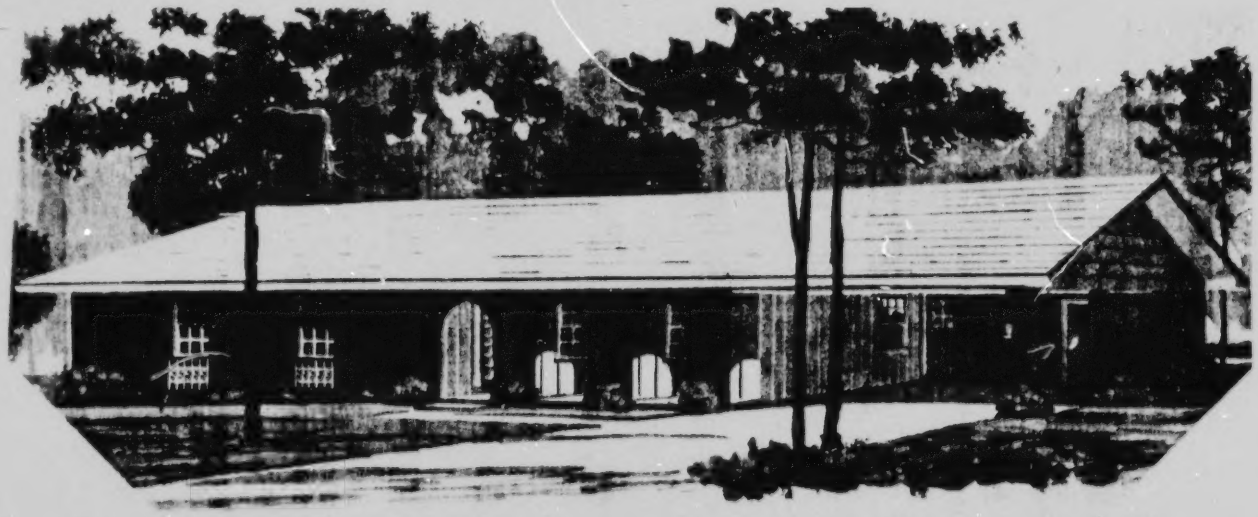

Figure 2

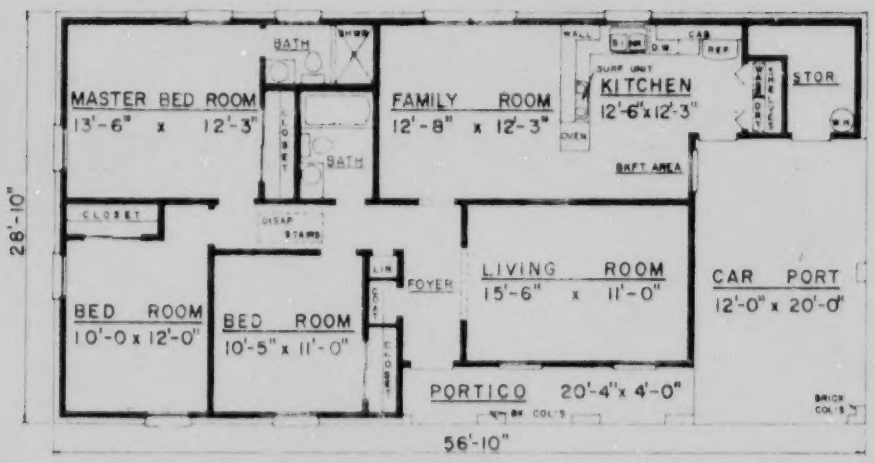
RESEARCH PROJECT

SANFORD CENTRAL HIGH SCHOOL

1708 NASH STREET

SANFORD, NORTH CAROLINA 27330






CLUSTER: DRAFTING

COURSE: ARCHITECTURAL DRAFTING

DA-VI

UNIT PACKAGE VI: ELEVATION VIEWS

PREREQUISITES: UNITS I-V

RATIONALE:

Have you ever stopped to think that there is more than just one type of roof in this old world? Can you name six common types of roofs? Well, finish this unit package and you'll be able to name six common roofs, plus draw elevations for a house.

This unit will help you develop the skills for roof identification and drawing elevations. The architectural draftsman needs to have command of these skills to portray the true representation of the house he draws. His skill in drawing the elevation gives a feeling of realism to his ideas.

The architectural draftsman also has the ability to use the different elevation symbols correctly. "Don't be guilty of misrepresenting elevations - finish this unit and roof-over your skills on the subject."

OBJECTIVES:

General:

Upon completion of this unit package you will be able to identify the common types of roof. You will be able to identify the basic elevation symbols and draw four elevations of a given structure.

OBJECTIVES (cont'd):

Specific:

Upon completion of the task packages for this unit, you will be able to:

1. Identify in writing, from illustrations, six common roof types, and state one use of each. Your performance will be evaluated in accordance with the instructor's checklist.
2. Identify in writing, from illustrations, elevation symbols and list ten rules for dimensioning elevation views. Your performance will be evaluated in accordance with the instructor's checklist.
3. Project and draw four elevations of a residence using appropriate symbols. Your performance will be evaluated in accordance with the instructor's checklist.

LEARNING ACTIVITY:

In order to complete this unit successfully you should begin your work on Task Package 1, and then as a suggestion proceed to complete each task package in order until you have finished each package in this unit. In the packages you will be asked to view a sound-slide presentation, read and answer questions, and perform some practical exercises. The number and names of the task packages included in this unit are as follows:

LEARNING ACTIVITY (cont'd):

TASK PACKAGE 1: IDENTIFICATION OF SIX COMMON ROOF TYPES

TASK PACKAGE 2: IDENTIFICATION OF ELEVATION SYMBOLS

TASK PACKAGE 3: DRAWING ELEVATION VIEWS

If you should feel confident enough to pass a comprehensive test at this time, contact your instructor. However, should you feel you are not ready to be tested, begin your work as outlined above.

DA-VI-1

UNIT VI: ELEVATION VIEWS

TASK PACKAGE 1: IDENTIFICATION OF SIX COMMON ROOF TYPES

PREREQUISITES: UNITS I-V

RATIONALE:

Don't raise the roof here. But raise your sights to the roof, and acquire some of the higher drafting skills.

Have you ever noticed the roof on a house? We know it serves the purpose of keeping out wind, rain, sun and the cold; but have you ever thought that a roof determines what a house will look like? This task package will aid you in developing the skill of identifying roofs. You will find that a particular roof can serve as decoration, yet have a functional use. The architectural draftsman has to be aware of the common types of roofs and how they apply to house design. "Lift the roof of this task package and find success."

OBJECTIVE:

Upon completion of this task package you will be able to identify in writing, from illustrations, six common roof types and state one use of each. Your performance will be evaluated in accordance with the instructor's checklist.

LEARNING ACTIVITY:

1. View sound-slide presentation _____, starring Raisie Roof.
2. Read Unit 27, pages 185-201, in Architectural Drafting and Design.
3. Study figure 27.3 on page 187 in your textbook. Notice the different styles of roofs in this figure.
4. Study figure 27.9 on page 189 in your textbook.
5. Study figure 27.10 on page 190 in your textbook. Notice how the appearance of the house changes with each style of roof.
6. Study figure 27.13 on page 190 in your textbook. The gable roof is a common roof seen rather frequently.
7. Study figure 27.14 on page 191 in your textbook. Look closely at the utilization of the hip roof.
8. Study figure 27.16 and 27.17 on page 191 in your textbook. Note the flat roof. Is it very practical for use in this area? Some industrial buildings have flat roofs.
9. Study figure 27.19 on page 192 in your textbook. Notice the difference between the flat and the shed roof.
10. Study figure 27.20 on page 192 in your textbook. You have no doubt seen roofs of this type in use.
11. Study figure 27.22b on pages 193 - 194 in your textbook. Here you will find a pictorial view of some of the roofs and how they appear in a plan view and in elevation.
12. Have you nailed this Learning Activity down? Check with your instructor.

LEARNING PRACTICE:

DIRECTIONS: Read the entire Learning Practice before starting to work.

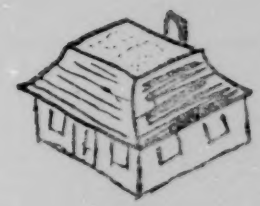
1. Turn to page 201 in your textbook.
   a. Study figure 27.44.
   b. Identify by listing in writing on ruled note paper the roofs shown in figure 27.44.
2. Turn to page 218 in your textbook.
   a. Study figure 30.4.
   b. What type roof does this residence have? _____
3. Turn to page 230 in your textbook.
   a. Study figure 34.6.
   b. What type roof does this residence have? _____
4. Turn to page 14 in your textbook.
   a. Study the picture at the top of the page.
   b. What type roof does this structure have? _____
5. Turn to page 5 in this task package.
   a. Study the illustration.
   b. Identify by listing in the blanks provided the type roof each illustration has.

LEARNING PRACTICE (cont'd):

You've come a long way, baby. Take your work to the instructor for an evaluation.

A prosperous career as a draftsman can put a nice roof over your head.

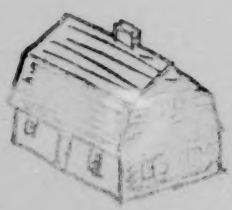
ROOF IDENTIFICATION



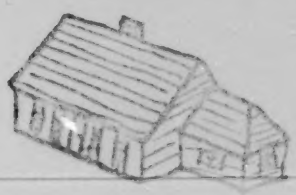
1. _____

4 _____

2 _____



5 _____



3 _____

6 _____

DA-VI-2

UNIT VI: ELEVATION VIEWS

TASK PACKAGE 2: IDENTIFICATION OF ELEVATION SYMBOLS

PREREQUISITES: UNITS I-V; UNIT VI, TASK PACKAGE 1

RATIONALE:

Symbols play an important role in life, and there are symbols for many things. This package is concerned with symbols for elevation views.

The architectural draftsman needs to have a knowledge of the elevation symbols used in drawing elevations. He needs to also know the correct technique for dimensioning an elevation. The draftsman conveys his thoughts and ideas of how the elevation appears from his symbols. His dimensions determine the size-and-shape description of the structure. The draftsman has to be skillful with these techniques if he is to convey his conception of the elevations of a structure. "Get yourself elevated and finish this task package."

OBJECTIVE:

Upon completion of this task package you will be able to identify, in writing from illustrations, elevation symbols and list ten rules for dimensioning elevation views. Your performance will be evaluated in accordance with the instructor's checklist.

LEARNING ACTIVITY:

1. View sound-slide presentation _____, featuring Ellie Symbol.
2. Read Unit 28, pages 202-206, in Architectural Drafting and Design.
3. Study figure 28.1 on page 202 in your textbook. Here is the floor plan of a residence, and projected from the floor plan are the four elevations.
4. Study figure 28.3 on page 204 in your textbook. Given here is the sequence for projecting an elevation from a floor plan.
5. Study figure 28.5 on page 203 in your textbook. Note carefully the sequence of projecting the roof outline. Use the rise and run carefully.
6. Read Unit 29, pages 207-215, in Architectural Drafting and Design.

LEARNING ACTIVITY (cont'd):

7. Study figure 29.1 and 29.2 on page 208 in your textbook. Note how, when the symbols are used correctly, the elevations have a realistic look.
8. Study figure 29.33 on pages 209 and 210 in your textbook. Notice the different symbols that denote the types of building materials.
9. Study figures 29.4 and 29.5 on page 211 in your textbook. The proper handling of windows enhances the realism of the elevation.
10. Study figure 29.8 on page 213 in your textbook. Notice the types of windows and how the swings are drawn on the elevation view.
11. Study figures 29.9, 29.10a and 29.10b on page 214 in your textbook. Take careful note of the trim for the windows and doors on elevations.
12. Read Unit 30, pages 216-218, in Architectural Drafting and Design.
13. Study figure 30.1 on page 216 in your textbook. Look carefully and see how an elevation is dimensioned properly.
14. Would you walk a mile for a task package? How about walking and checking with the instructor instead.

LEARNING PRACTICE:

DIRECTIONS: Read the entire Learning Practice before starting to work.

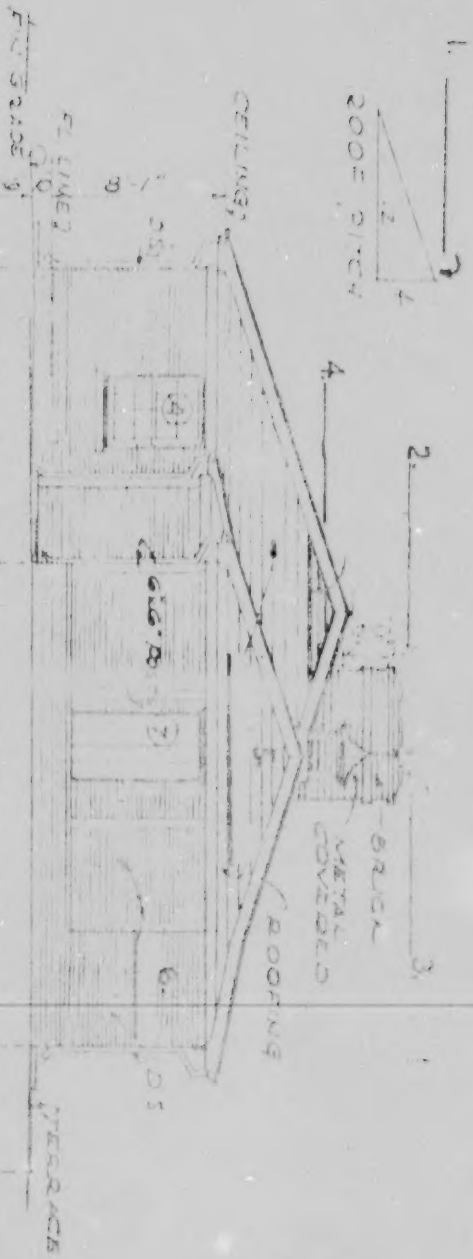
1. Turn to page 5 in this task package.
   a. Study figure one.
   b. Identify, by listing in the blanks provided, the elevation symbols.
2. List on a sheet of ruled note paper ten rules for dimensioning elevations.
3. Do you dimension the thickness of the footer?
4. Are chimney heights dimensioned above the ridge line of the roof? _____ Why? _____

   _____
5. How are doors and windows dimensioned? _____

   _____

Have you truly become elevated over the completion of this task package? If so take your work to the instructor for an evaluation.

Keep up your good work and it will become the symbol of elevated drafting skills.




RIGHT SIDE ELEVATION

UNIT VI: ELEVATION VIEWS

TASK PACKAGE 3: DRAWING ELEVATION VIEWS

PREREQUISITES: UNITS I-V; UNIT VI, TASK PACKAGES 1-2

RATIONALE:

Elevate your view here to additional drafting skills. If you apply yourself to this package, you will be able to get your house off the ground.

You have worked hard on the other packages, and now you will have the opportunity to develop your house to the point where you will see it come to life. The elevation of a residence adds realism to the floor plan, sections and foundation. The architectural draftsman uses the elevations as graphical means of displaying the outside features of the structure. The elevation gives the owner and workmen an idea of what the structure will look like when construction is completed. "Don't go to the next, my dear. Find the front of this package."

OBJECTIVE:

Upon completion of this task package you will be able to project and draw four elevations of a residence using appropriate symbols. Your performance will be evaluated in accordance with the instructor's checklist.

LEARNING ACTIVITY:

1. View sound-slide presentation _____, starring Ellie Vation.
2. Review Unit 27, pages 185-202, in Architectural Drafting and Design.
3. Study figure 27.1 on page 186 in your textbook. Note the factors that can make or break a good design in elevations.
4. Study figure 27.3 on page 187 in your textbook. Notice in the five illustrations the many points of design that are brought out in the elevations.
5. Study figures 27.28a and 27.28b on page 196 in your textbook. Remember lines have to be related to form a pleasing effect in an elevation.
6. Study figure 27.37 on page 199 in your textbook. Can you detect the difference between the two structures?
7. Study figure 27.41 on page 200 in your textbook. Lines, lines! They are really important for good representations.

LEARNING ACTIVITY (cont'd):

8. Review Unit 28, pages 202-206, in Architectural Drafting and Design.
9. Study figure 28.1 on page 202 in your textbook. Do you know how the ceiling heights and other dimensions were found to draw these elevations? We used the wall sections.
10. Study figure 28.5 and 28.6 on page 205 in your textbook.
11. Review Unit 29, pages 207-215, in Architectural Drafting and Design.
12. Study figures 29.1 and 29.2 on page 208 in your textbook. See how all these symbols add realism.
13. Study figures 29.4 and 29.5 on page 211 in your textbook. Windows can add a lot to an elevation if they are properly drawn.
14. Review Unit 30, pages 216-218, in Architectural Drafting and Design.
15. You have finished the Learning Activity. Congratulations! Check with your instructor.

LEARNING PRACTICE:

DIRECTIONS: Read the entire Learning Practice before starting to work.

LEARNING PRACTICE (cont'd):

1. Obtain two sheets of 17 x 22 paper from the instructor. He will provide you with the proper layout to use.
2. Turn to page 215 in your textbook.
   a. Prepare a sheet of paper using the proper layout.
   b. Study the floor plan and pictorial view in figure 29.13.
   c. Draw a front elevation of the house in figure 29.13.
   d. Use the appropriate symbols and draw to a scale of 1/4" = 1' - 0".
   e. Use your discretion to find dimensions of the house. If you have difficulty, see the instructor.
   f. Dimension the house, using the correct techniques.
3. Draw a front elevation of a given residence.
   a. Prepare your paper.
   b. Study the floor plan you drew in Unit III-2.
   c. Draw a front elevation of the residence in Unit III-2. Use your judgment about design and materials.
   d. Employ the appropriate symbols, and dimension, using the correct techniques.
   e. Use a scale of 1/4" = 1' - 0".
4. Draw a right elevation of a given residence.
   a. Prepare your paper using the proper layout. (Space so that you can place the left elevation on this page also.)

LEARNING PRACTICE (cont'd):

b. Draw a right elevation of the residence in Unit III-2.

c. Use the appropriate symbols, and dimension, using the correct techniques.

5. Draw a left elevation of a given residence.

a. Use the same sheet of paper as you did for the right elevation.

b. Draw a left elevation of the residence in Unit III-2.

c. Use the appropriate symbols, and dimension, using the correct techniques.

6. Draw a rear elevation of a given residence.

a. Prepare your paper, using the proper layout.

b. Draw a rear elevation of the residence in Unit III-2.

c. Use the appropriate symbols, and dimension, using the correct techniques.

Have you elevated yourself through the completion of this package? Take your work to the instructor for an evaluation.

Your view is becoming elevated to a prosperous career in drafting.

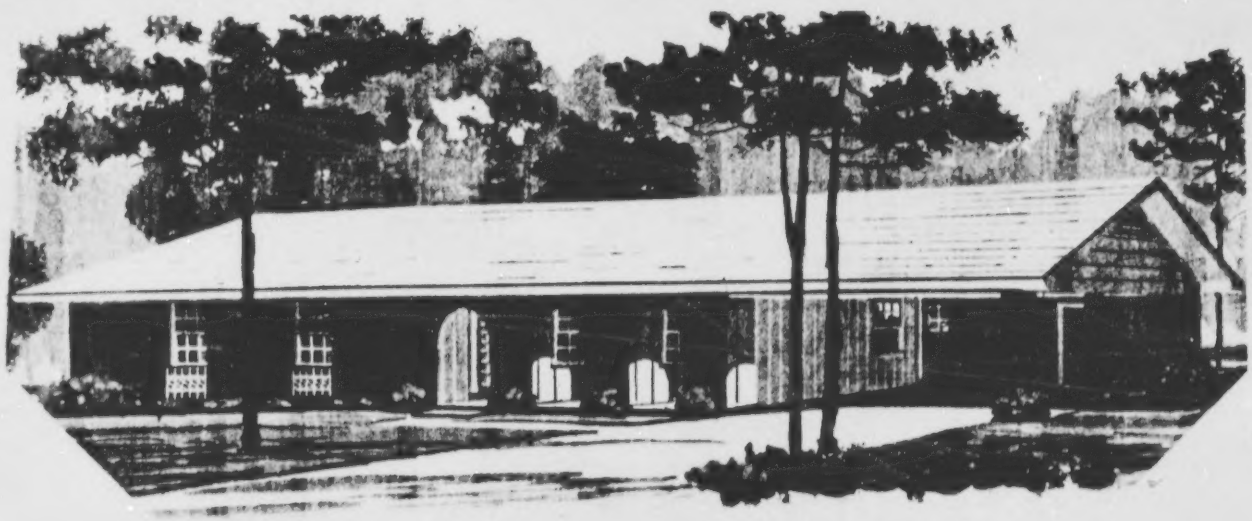
RESEARCH PROJECT

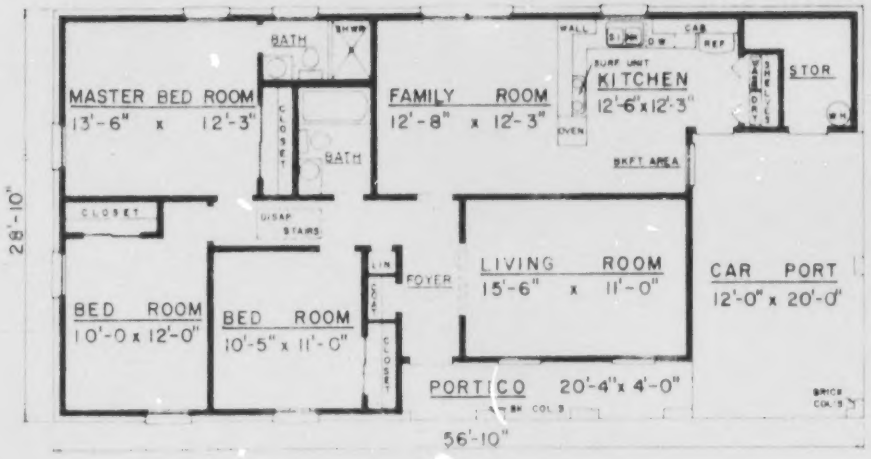
SANFORD CENTRAL HIGH SCHOOL

1708 NASH STREET

SANFORD, NORTH CAROLINA 27330

VII






CLUSTER: DRAFTING

COURSE: ARCHITECTURAL DRAFTING

CE003934 (g)

DA-VII

UNIT PACKAGE VII: ELECTRICAL PLANS

PREREQUISITES: UNITS I-VI

RATIONALE:

The architectural draftsman has to have an understanding of lighting techniques. He must be able to decide the type lighting and how to place this lighting in a room. Some rooms have to have specific lighting; the architectural draftsman has to be aware of the circumstances in each case.

The draftsman draws an electrical plan for the structure. This plan aids the contractor and electrical contractor in the placement of the light and also in being able to predict the amount of material that may be needed. "Wire yourself together and light up with excitement over this unit."

OBJECTIVES:

General:

Upon completion of this unit package you will be able to demonstrate in writing the technique of lighting and draw an electrical plan for a given residence.

Specific:

Upon completion of the task package for this unit, you will be able to:

OBJECTIVES (cont'd):

1. Describe in writing the following:
   a. two basic types of lighting.
   b. five types of lighting dispersion.
   c. three types of lighting methods.
   d. two rules for lighting the following rooms:
      (1) kitchen.
      (2) bathroom.
      (3) living room.
      (4) bedroom.

   Your performance will be evaluated from the criteria specified in Unit 56 of Architectural Drafting and Design, and in accordance with the instructor's checklist.

2. Draw an electrical layout for a residence, using the appropriate symbols and scale. Your performance will be evaluated from criteria specified in Units 56, 57 and 58 in Architectural Drafting and Design and in accordance with the instructor's checklist.

LEARNING ACTIVITY:

In order to complete this unit successfully you should begin your work on Task Package 1, and then as a suggestion proceed to complete each task package in order until you have finished each package in this unit. In the packages you will be asked to view a sound-slide presentation, read and answer questions, and perform some practical exercises. The number and names of the task packages

LEARNING ACTIVITY (cont'd):

included in this unit are as follows:

TASK PACKAGE 1: DEMONSTRATING IN WRITING THE PRINCIPLES OF LIGHTING

TASK PACKAGE 2: DRAWING AN ELECTRICAL LAYOUT FOR A RESIDENCE

If you should feel confident enough to pass a comprehensive test at this time, contact your instructor. However, should you feel you are not ready to be tested, begin your work as outlined above.

DA-VII-1

UNIT VII: ELECTRICAL PLANS

TASK PACKAGE 1: DEMONSTRATING IN WRITING THE PRINCIPLES OF LIGHTING

PREREQUISITES: UNITS I - VI

RATIONALE:

Light up each room according to its personality. Different rooms take different types of lights and lighting. It's a matter of atmosphere, as you'll learn here.

The architectural draftsman has to have a knowledge of lighting techniques. He has to be familiar with the types of lighting and how these can be applied for the best visual results. Proper lighting lends an atmosphere to a room or a home that can be pleasant. The draftsman should realize that each room has different requirements for lighting. Rooms that have specific uses should have specific lighting of certain types. This package will give you the insight for proper lighting techniques. "Spark a thought of knowledge and a fire of skills can be grown." Turn on with this task package.

OBJECTIVE:

Upon completion of this task package you will be able to describe in writing the following:

a. two basic types of lighting.

b. five types of lighting dispersion.

c. three types of lighting methods.

d. two general rules for lighting the following rooms:

   1. kitchen.

   2. bathroom.

   3. living room.

   4. bedroom.

Your performance will be evaluated from the criteria specified in Unit 56, Architectural Drafting and Design, and in accordance with the instructor's checklist.

LEARNING ACTIVITY:

1. View sound-slide presentation _____, starring Lightfoot Lightdey.

2. Read Unit 56, pages 382 - 395, in Architectural Drafting and Design.

3. Light is measured in footcandles. Light is very important in the planning of rooms according to their functions, such as

LEARNING ACTIVITY (cont'd):

bedroom and living room. Which would need more light and of what type?

4. Study figure 56-8 on page 390 in your textbook. Lighting dispersion can be used as a decorative effect, or it can have a functional use.
5. Study figure 56-12 on page 391 in your textbook. Notice the different utilization of each type of lighting.
6. Study figure 56-13 on page 392 in your textbook. Notice how each type of lighting has a different application.
7. Study figure 56-15 on page 392 in your textbook. Notice the types of wall fixtures.
8. Study figure 56-17 on page 393 in your textbook. Note carefully the advantages of good lighting and disadvantages of poor lighting.
9. Study figure 56-25 on page 394 in your textbook. Look carefully at how the lamp is situated for reading and studying.
10. Have you lighted the lamp of knowledge by finishing this task package? Check with your instructor.

LEARNING PRACTICE:

DIRECTIONS: Read the entire Learning Practice before starting to work.

LEARNING PRACTICE (cont'd):

1. What are the two types of lighting as stated in Unit 56 of your textbook? _____

_____

2. What are five types of lighting dispersion that can be used in a residence? _____

_____

_____

3. What are the three types of lighting methods? _____

_____

4. List two general rules for lighting the following rooms:

   a. kitchen _____

   b. bathroom _____

   c. living room _____

   d. bedroom _____

Has this package sparked a light of knowledge? If it has take your answers to the instructor for an evaluation.

Light up with a smile and the world lights up with you.

DA-VII-2

UNIT VII: ELECTRICAL PLANS

TASK PACKAGE 2: DRAWING AN ELECTRICAL LAYOUT FOR A RESIDENCE

PREREQUISITES: UNITS I - VI; UNIT VII, TASK PACKAGE 1

RATIONALE:

Lay out your attention here on electrical layouts. You may become electrified by the information contained in this package. And be sure to watch your AC's and DC's.

You have the skill in applying the techniques as for as lighting arrangement and placing are concerned. Let's develop this skill further by drawing the electrical layout for your residence. Electrical layouts are important. They provide the electrical contractor with the information he needs about the amount of wire, types of light and the designing of the system into a house. "The completion of this task package could turn you on to better lighting for your residence and also brighten your skills."

OBJECTIVE:

Upon completion of this task package you will be able to draw an electrical layout for a residence, using the appropriate symbols and scale. Your performance will be evaluated from criteria specified in Units 56, 57 and 58 in Architectural Drafting and Design and in accordance with the instructor's checklist.

LEARNING ACTIVITY:

1. Read Unit 58, pages 403 - 410, in Architectural Drafting and Design.
2. How many electrical outlets should each room have? _____
3. How many electrical outlets should the kitchen have? _____
4. Study figures 58-1, 58-2, 58-3 on page 403 in your textbook. Notice how switches should be convenient. The outlets on the walls should be readily available.
5. Study figure 58-4 on page 404 in your textbook. The height of the outlets should be for convenience.
6. Study figure 58-6 on page 404 in your textbook. Remember to make sure the stairways are always well lighted.

LEARNING ACTIVITY (cont'd):

7. Study figure 58-14 on page 407 in your textbook. The sequence of planning the wiring for a residence is important, and the draftsman should be aware of the situation.

8. Study figure 58-15 on page 407 in your textbook. These symbols should be studied carefully. What is a convenience outlet? _____

_____

9. What is a general outlet? _____

_____

10. Study figure 58-16 on page 408 in your textbook. Here is a floor plan complete with electrical symbols.

11. How many convenience outlets does the living room have in figure 58-16? _____

12. Finishing this Learning Activity should be convenient for your success. Take your answers to the instructor.

LEARNING PRACTICE:

DIRECTIONS: Read the entire Learning Practice before starting to work.

1. Obtain two sheets of paper, one 8 1/2 x 11 and one 17 x 22, from the instructor. He will also provide you with the type layout to use.

2. Complete a wiring plan for a floor plan.

LEARNING PRACTICE (cont'd):

a. Prepare your paper using the proper layout.

b. Turn to page 410 in your textbook and study figure 58-28.

c. Draw the floor plan for figure 58-28. Use a scale of 1/4" = 1' - 0".

d. Complete the electrical layout employing the appropriate symbols.

e. Exercise your discretion as to when to place the outlet switches and lights. Use Unit 58 as a guide.

f. When you complete this problem, check with the instructor.

3. Draw an electrical layout of a residence.

a. Prepare your paper.

b. Draw the floor plan for the residence you drew in Unit III - 2. Use a scale of 1/4" - 1' - 0".

c. Draw the electrical layout of the residence employing the appropriate symbols.

d. Exercise your discretion as to where to place the outlets, switches, and lights. Use Unit 58 as a guide.

e. Label the drawing where it is necessary.

"If you have wired this package up, take it to the instructor and light him up with its content. He will evaluate your work."

Keep turning on the lights to illuminate your way to new skills in drafting.

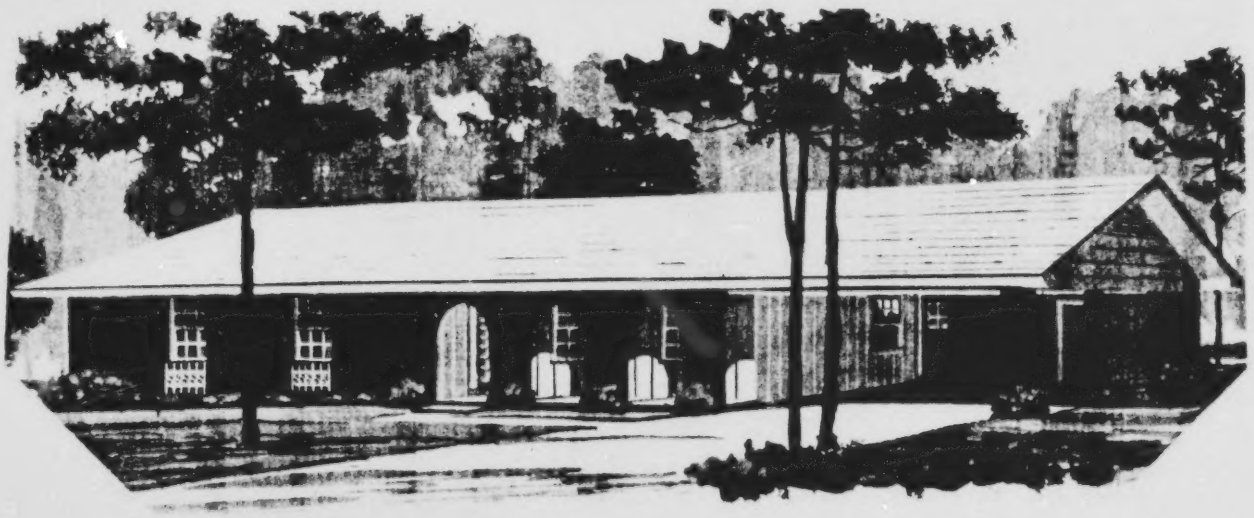
RESEARCH PROJECT

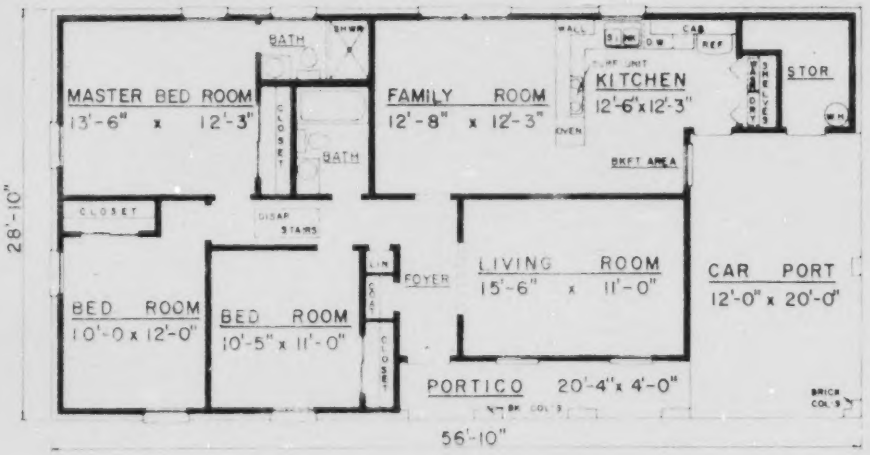
SANFORD CENTRAL HIGH SCHOOL

1708 NASH STREET

SANFORD, NORTH CAROLINA 27330

VIII






CLUSTER: DRAFTING

COURSE: ARCHITECTURAL DRAFTING

CE003934(-A)

DA-VIII

UNIT PACKAGE VIII: PLUMBING PLANS

PREREQUISITES: UNITS I-VII

RATIONALE:

The architectural draftsman has to have the ability to draw a plumbing plan. To do so he must be able to identify the different pipe lines that are used in a plumbing plan. This plan gives the contractor and plumber a considerable amount of information concerning the lines and equipment needed to supply the residence.

You should line the Objectives in this unit up and succeed in tackling them one by one.

OBJECTIVES:

General:

Upon completion of this unit package you will be able to identify the types of pipe lines used in plumbing and draw a plumbing plan for a residence.

Specific:

Upon completion of the task packages for this unit, you will be able to do the following:

1. a. draw three types of plumbing line pipes.

   b. draw four common plumbing fixtures.

   Your performance will be evaluated on the basis of the criteria in Section 16 in Architectural Drafting and Design and in accordance with the instructor's checklist.

OBJECTIVES (cont'd):

2. Draw a plumbing layout for a residence using the appropriate symbols and scale. Your performance will be evaluated based on the criteria specified in Unit 16 in Architectural Drafting and Design and in accordance with the instructor's checklist.

LEARNING ACTIVITY:

In order to complete this unit successfully you should begin your work on Task Package 1, and then as a suggestion proceed to complete each task package in order until you have finished each package in this unit. In the packages you will be asked to view a sound-slide presentation, read and answer questions, and perform some practical exercises. The number and names of the task packages included in this unit are as follows:

TASK PACKAGE 1: DEMONSTRATING A KNOWLEDGE OF PLUMBING BY IDENTIFICATION

TASK PACKAGE 2: DRAWING A PLUMBING PLAN FOR A RESIDENCE

If you should feel confident enough to pass a comprehensive test at this time, contact your instructor. However, should you feel you are not ready to be tested, begin your work as outlined above.

DA-VIII-1

UNIT VIII: PLUMBING PLANS

TASK PACKAGE 1: DEMONSTRATING A KNOWLEDGE OF PLUMBING BY IDENTIFICATION

PREREQUISITES: UNITS I - VII

RATIONALE:

Don't get plumb lazy right here. This package concerns plumbing. So be plumb smart and get right into it.

The architectural draftsman not only needs to know where to place the plumbing conveniences, but he also requires knowledge about the piping system that feeds these units. This package is about plumbing pipe lines and the symbols used in preparing a plumbing layout. The draftsman has to be aware of the proper utilization of the symbols and the recognition of the lines used. "Stay out of hot water by turning on the tap of knowledge and finishing this task package."

OBJECTIVE:

Upon completion of this task package you will be able to do the following:

a. draw three types of plumbing line pipes.

b. drew four conventional plumbing fixtures.

Your performance will be evaluated on the basis of the criteria in section 16 in Architectural Drafting and Design, and in accordance with the instructor's checklist.

LEARNING ACTIVITY:

1. Read Unit 61, pages 423 - 428, in Architectural Drafting and Design.
2. How is fresh water brought into the plumbing fixtures of a house? _____
3. Study figure 61-1 on page 424 in your textbook. Notice the arrangement of the pipes in the illustration. Can you see the vent pipe? _____
4. Waste lines are categorized into two types. What are they? _____
5. What is the purpose of a fixture trap? _____
6. What is a soil line? _____

LEARNING ACTIVITY (cont'd):

7. What principle makes the waste line function? _____

_____

8. Study figures 61-7 and 61-8 on page 426 in your textbook. Can you find the cut-off valves in each illustration? What is a cut-off valve? _____

9. When a city sewer is not available, how is waste disposed of?

_____

10. What determines the distance the septic tank can be located from the house? _____

11. Read Unit 62, pages 428 - 431, in Architectural Drafting and Design.

12. What are the four types of bathroom fixtures? _____

_____

_____

13. How many types of washing machines are seen in figure 62-6 on page 429 in your textbook? _____

_____

14. You'll be plumb sorry if you don't finish this Learning Activity. Take your answers to the instructor.

LEARNING PRACTICE:

DIRECTIONS: Read the entire Learning Practice before starting to work.

1. Obtain two sheets of 8 1/2 x 11 paper from your instructor. He will provide you with the proper layout to use.
2. Turn to page 429 in your textbook and study figure 62-7.
3. Draw plumbing lines and fixtures.
   a. Prepare your paper using the proper layout.
   b. Draw the floor plan in figures 62-7.
   c. Draw the plumbing lines and symbols needed in the plan.
   d. Use a scale of 1/8" = 1' - 0".
   e. Use your discretion as to the placement of pipes and conveniences.
4. Draw plumbing lines and symbols for second problem.
   a. Prepare your paper.
   b. Turn to page 427 in your textbook and study figure 61-13.
   c. Draw the water supply and waste disposal lines to this problem.
   d. Use a scale 1/8" = 1' - 0".
   e. Use your discretion as to the placement of the pipes.

You'll think you're humming when you finish this package on plumbing. Take your work to the instructor so he can evaluate it.

Don't turn the cut-off valve here. Let the drafting skills keep running.

DA-VIII-2

UNIT VIII: PLUMBING PLAN

TASK PACKAGE 2: DRAWING A PLUMBING PLAN FOR A RESIDENCE

PREREQUISITES: UNITS I-VI; UNIT VIII, TASK PACKAGE 1

RATIONALE:

You're plumb good at designing a house in easy stages. And now the time has arrived for you to get plumb smart in drawing a plumbing plan.

You have brought your house a long way since that first package. You have added a lot and now, when you complete this package, you will bring that residence one more step closer to completion. The architectural draftsman has to have a knowledge of plumbing techniques. The plumber depends on the draftsman's plans for estimating the material needed. The placement of water line and sewage disposal is connected with the plumbing in a house. "Sink into the package. Find success -- and come out smelling like a rose."

OBJECTIVE:

Upon completion of this task package you will be able to draw a plumbing layout for a residence using the appropriate symbols and scale. Your performance will be evaluated based on the criteria specified in Unit 61, Architectural Drafting and Design, and in accordance with the instructor's checklist.

LEARNING ACTIVITY:

1. Review Units 61 and 62 on pages 423-431 in Archectural Drafting and Design.
2. What is an air chamber? _____
3. What is a vent stack? _____
4. Study figure 61-7 on page 426 in your textbook.
5. Which system of pipes never has water in it? _____
6. Study figure 61-11 on page 427 in your textbook.
7. What is a distribution box? _____
8. Have you aired this Learning Activity? If you have, take your answers to the instructor.

LEARNING PRACTICE:

DIRECTIONS: Read the entire Learning Practice before starting to work.

1. Obtain two sheets of paper from your instructor, one 8 1/2 x 11 and one 17 x 22. He will provide you with the proper type of layout to use.
2. Draw the bathroom schematic plan in figure 61-9.
   a. Prepare your 8 1/2 x 11 paper using the proper layout.
   b. Turn to page 427 in your textbook and study figure 61-9.
   c. Draw the plan for the bathroom in figure 61-9.
   d. Draw the plumbing plan as it is shown in figure 61-9.
   e. Label the plan employing the correct symbols. Use a 1/8" = 1'-0" scale.
3. Draw a plumbing schematic plan of your residence.
   a. Prepare your 17 x 22 paper using the proper layout.
   b. Study the floor plan you drew in Unit III-2.
   c. Draw the floor plan to a scale of 1/4" = 1' - 0".
   d. Draw the plumbing schematic plan for your residence.
   e. Use the appropriate symbols.
   f. Exercise your discretion and design the layout of plumbing line and pipes.
   g. If you have any difficulty, see your instructor.

You've drained this package dry. Take your work to the instructor for his evaluation.

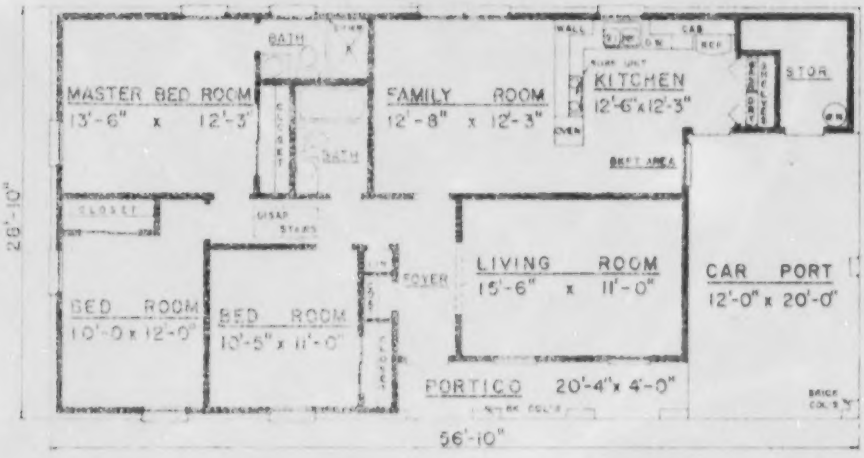
IX

RESEARCH PROJECT

SANFORD CENTRAL HIGH SCHOOL

1708 NASH STREET

SANFORD, NORTH CAROLINA 27330




CLUSTER: DRAFTING

COURSE: ARCHITECTURAL DRAFTING

CE003934(x)

DA-IX

UNIT PACKAGE IX: MECHANICAL PLAN

PREREQUISITES: UNITS I-VIII

RATIONALE:

The architectural draftsman has to be able to draw a mechanical plan for a structure. Do you know what a mechanical plan is? Primarily it consists of the heating and cooling plant and plan of a building. You will have to draw a heating plan in this unit. You will also be required to identify some of the methods of heating that are used today. "Don't get in hot water by not being in the know - complete this unit and put an ice on the no - know."

OBJECTIVES:

Upon completion of this unit package you will be able to identify the basic types of heating and draw a heating plan for a residence.

Specific:

Upon completion of the task packages for this unit, you will be able to:

1. Define in writing the following:
   a. three types of heat transfer.
   b. five types of heating devices.
   c. two types of heating systems.
   d. thermostat.
   e. air-conditioning capacity.

OBJECTIVES (cont'd):

Your performance will be evaluated on the basis of the criteria in Unit 59 in Architectural Drafting and Design and in accordance with the instructor's checklist.

2. Draw a complete heating and air conditioning plan for a residence using the appropriate symbols and scale. Your performance will be evaluated based on the criteria specified in Units 59 and 60, Architectural Drafting and Design, and in accordance with the instructor's checklist.

LEARNING ACTIVITY:

In order to complete this unit successfully you should begin your work on Task Package 1, and then as a suggestion proceed to complete each task package in order until you have finished each package in this unit. In the packages you will be asked to view a sound-slide presentation, read and answer questions, and perform some practical exercises. The number and names of the task packages included in this unit are as follows.

TASK PACKAGE 1: DEMONSTRATING A KNOWLEDGE OF HEATING AND AIR CONDITIONING BY IDENTIFICATION

TASK PACKAGE 2: DRAWING A HEATING LAYOUT FOR A RESIDENCE

If you should feel confident enough to pass a comprehensive test at this time, contact your instructor. However, should you feel you are not ready to be tested, begin your work as outlined above.

DA-IX-1

UNIT IX: MECHANICAL PLAN

TASK PACKAGE 1: DEMONSTRATING A KNOWLEDGE OF HEATING AND AIR CONDITIONING BY IDENTIFICATION

PREREQUISITES: UNITS I-VIII

RATIONALE:

Are you familiar with the expression "environmental control systems"? That's a new phrase to designate heating, air conditioning, and refrigeration. The first two, heating and air conditioning, are treated in this package.

Comfort requires heat in the winter and cool in the summer. Do you know how to provide these conditions for your residence? The architectural draftsman must have a knowledge of the ways to heat and cool a house. He must know how to employ the proper techniques for each method. The architectural draftsman must be familiar with the symbols used in heating and air conditioning. He must be aware of the fact that improper representation can lead to costly mistakes. "Turn up the control button, and let's settle back and breeze through this task package. You can be conditioned to perform skillfully."

OBJECTIVES:

Upon completion of this task package you will be able to demonstrate a knowledge of heating and air conditioning by identifying in writing the following:

a. three types of heat transfer.

b. five types of heating devices.

c. two types of heating systems.

d. thermostat.

e. air conditioning capacity.

Your performance will be evaluated on the basis of the criteria in Unit 59 in Architectural Drafting and Design and in accordance with the instructor's checklist.

LEARNING ACTIVITY:

1. Read Unit 59, pages 411-420, in Architectural Drafting and Design.
2. Study figures 59.2, 59.3 and 59.4 on page 412 in your textbook.
3. Study figure 59.5 on page 412 in your textbook.
4. Do you know why there is more insulation at the top of the house? Heat rises, so more insulation is needed at the top to keep the heat in.
5. Study figure 59.8 on page 413 in your textbook. Did you know that the color of the roof has a lot to do with reflecting the sun's

LEARNING ACTIVITY (cont'd):

rays or soaking the rays in?

6. Study figure 59.14 on page 414 in your textbook. Notice the flow of air from the furnace through the room.
7. Study figure 59.15 on page 415 in your textbook. You can see what function the air ducts fulfill by supplying the heated air.
8. Study figure 59.19 on page 416 in your textbook.
9. Study figure 59.31 on page 419 in your textbook. Note carefully the causes of humidity and how these conditions can be corrected.
10. Have you warmed up to this Learning Activity? Check with your instructor.

LEARNING PRACTICE:

DIRECTIONS: Read the entire Learning Practice before starting to work.

1. Use a sheet of ruled note paper to answer the following questions on:
   a. Identify, by writing, three types of heat transfer.
   b. Identify, by writing, five types of heating devices.
   c. Identify, by writing, two types of heating systems.
   d. Explain in writing what a thermostat is.

LEARNING PRACTICE (cont'd):

e. Define air conditioning capacity.

f. Define all the items in a above.

g. Define all the items in b above.

h. Define all the items in c above.

Mechanically speaking, you've completed this package. Take your work to the instructor for an evaluation.

Set your thermostat for gaining additional drafting skills in total comfort.

DA-IX-2

UNIT IX: MECHANICAL PLAN

TASK PACKAGE 2: DRAWING A HEATING LAYOUT FOR A RESIDENCE

PREREQUISITES: UNITS 1 - VIII; UNIT IX, TASK PACKAGE 1

RATIONALE:

Get ready, now, by warming up for this package on heating layout. Here's your chance to develop some really hot drafting skills.

Man has always loved comfort. What could be more comfortable than a nicely heated home in the winter, when snow is on the ground? What could be worse than a poorly heated home in

draw heating plans for a residence. The draftsman needs to be aware of the types of heating plants and how each can be utilized to its fullest. "If you are crazy as a loon in a fog with your skill, then you'll succeed with this task; anyway without drawing a spill."

DA-IX-2

OBJECTIVE:

Upon completion of this task package you will be able to draw a complete heating and air-conditioning plan for a residence using the appropriate symbols and scale. Your performance will be evaluated based on the criteria specified in Units 59 and 60, Architectural Drafting and Design, and in accordance with the instructor's checklist.

LEARNING ACTIVITY:

1. Review Units 59 and 60, pages 411 - 427, in Architectural Drafting and Design.
2. What type of heating is based upon the principle of warm air flowing to a cooler surface? _____
3. Explain the principle of convection heating. _____
4. Why is insulation used in a residence? _____
5. Name the three types of insulation used in a home. _____
6. List some deterrents to heat transfer that are related to a residence. _____

LEARNING ACTIVITY (cont'd):

7. What are the two most flexible types of heating systems?

8. Explain the principle of radiant heating.

9. Explain the principle of a warm-air unit.

10. What is solar heat?

11. What is a heat pump?

12. What is air-conditioning?

13. What is a B. T. U.?

14. Explain the term ventilation.

15. Have you warmed over this Learning Activity? Have your answers to the instructor.

LEARNING PRACTICE:

DIRECTIONS: Read the entire Learning Practice before starting to work.

1. Obtain two sheets of paper from your instructor, one 8 1/2 x 11, one 17 x 22. He will also give you the proper layout to use.
2. Turn to page 420 in your textbook and study figure 59-33.
3. Prepare your 8 1/2 x 11 paper, using the proper layout.
4. Draw the floor plan shown in figure 59-33. Use a scale of 1/8" = 1'-0".
5. Draw the position of the heating outlets on the plan. Employ the criteria in Unit 59 in your textbook.
6. Draw a heating plan for your residence.
   a. Prepare a sheet of paper using the proper layout.
   b. Study the floor plan you drew in Unit VII-7.
   c. Draw the floor plan using a 1/4" = 1' - 0" scale.
   d. Incorporate your discretion, draw the heating plan for a forced air unit.
   e. If you have any difficulty see your instructor.

You surely have some other way. Why. Take your work to the instructor so that he can evaluate it.

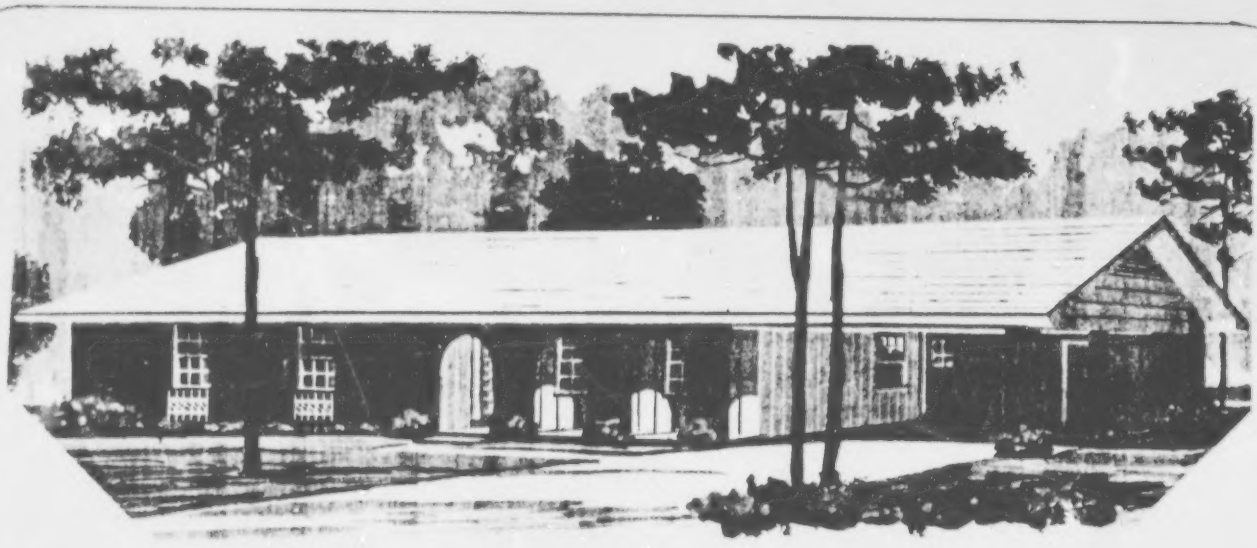
You're really hot on the trail of new learning skills.

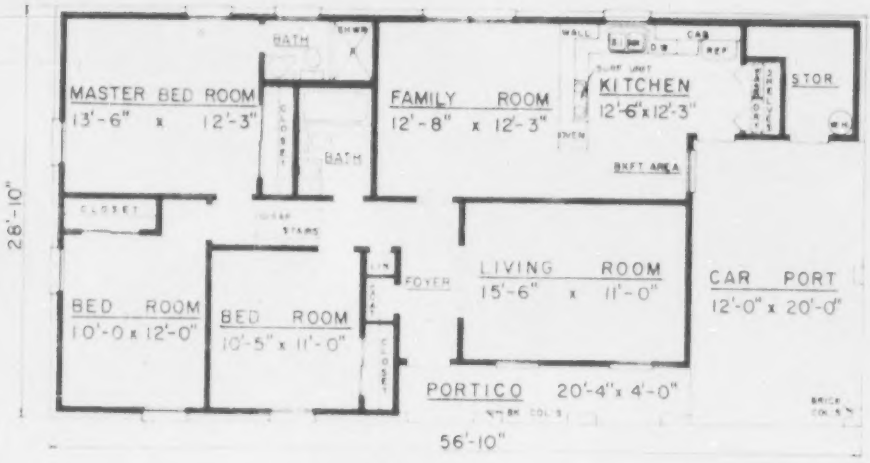
RESEARCH PROJECT

SANFORD CENTRAL HIGH SCHOOL

1708 NASH STREET

SANFORD, NORTH CAROLINA 27330






CLUSTER: DRAFTING

COURSE: ARCHITECTURAL DRAFTING

QE003934(j)

DA-X

UNIT PACKAGE X: SCHEDULES

PREREQUISITES: UNITS I-IX

RATIONALE:

Ever stop to think how many windows and doors there are in one house? Sure are a lot, aren't there. How would you provide all the necessary information about every door in a set of plans. The architectural draftsman has to know and this unit will provide you with the insight. The draftsman has to know many short-hand methods so he can express himself quickly and yet briefly to the point. This unit will provide you with the skills to schedule your way through the Objectives of this task package.

General:

Upon completion of this unit package you will be able to plan and draw the required schedules found in a set of house plans.

Specific:

Upon completion of the task package for this unit, you will be able to:

1. Prepare door, window, interior and exterior finish schedules for a residence. Your performance will be evaluated based on the criteria as specified in Units 51 and 52, Architectural Drafting and Design, and in accordance with the instructor's checklist.

LEARNING ACTIVITY:

This unit is composed of one package. In this package you will be asked to view a sound-slide presentation, read and answer questions, and perform some practical exercises. The number and name of the task package included in this unit are as follows:

TASK PACKAGE 1: PREPARING SCHEDULES

If you should feel confident enough to pass a comprehensive test at this time contact your instructor. However, should you feel you are not ready to be tested, begin your work as outlined above.

DA-X-1

UNIT X: SCHEDULES

TASK PACKAGE 1: PREPARING SCHEDULES

PREREQUISITES: UNITS I-IX

RATIONALE:

Do you schedule your activities? Many people do. The importance of scheduling in architectural drafting is emphasized here. So schedule some time to study it.

It would be a tremendous job to list every door and window in a floor plan and describe them individually. The architectural draftsman needs to know how to prepare schedules for windows, doors and finishes, both interior and exterior. These schedules give the [illegible] the quantity, type and remarks pertaining to each item on the floor plan. Schedule your time so that you may finish th e task package successfully.

OBJECTIVE:

Upon completion of this task package you will be able to prepare door, window, interior and exterior finish schedules for a residence. Your performance will be evaluated based on the criteria as specified in Units I and II, Architectural Drafting and Design, and in accordance with the instructor's guidelines.

LEARNING ACTIVITY:

1. View sound-slide presentation DA-X-1, starring Sam Schedule.
2. Read Units 51 and 52, pages 372-377, in Architectural Drafting and Design.
3. What is a door and window schedule? _____

_____

_____

4. Study figure 51.1 on page 373 in your textbook.
5. What type door is B? _____

How many are required? _____

6. What are the width and height on door B? _____

_____

_____

Are there any special remarks? If so, what are they? _____

_____

8. What type window is T? _____

What is the catalogue number of this window? _____

9. Study figure 51.4 on page 374 in your textbook. How many exterior designs are there for doors? _____
10. Study figure 51.5 on page 376 in your textbook. How many types of interior doors are there? _____
11. What is a paint schedule? _____

_____

0

_____

LEARNING ACTIVITY (cont'd):

12. Study figure 52.1 on page 375 in your textbook.

13. What type paint, and what color paint does the ceiling of the kitchen have? _____

14. What is to be the condition of the floor in the living room?

_____

15. Study page 5 in this task package. What is the description of door "4"? _____

_____

16. What type window is "A"? _____

_____

17. Looks as though you're finishing on schedule. Take your answers to the instructor.

LEARNING PRACTICE:

DIRECTIONS: Read the entire learning practice before starting to work.

1. Obtain one sheet of 17 x 22 paper and the instructor will give you the layout to use on your paper.
2. Study the floor plan you drew in Unit [illegible].
3. Prepare your paper using the proper layout.
4. Prepare a door and window schedule for all doors and windows on your floor plan.

LEARNING PRACTICE (cont'd):

5. Prepare an interior and exterior finish schedule for your residence.
6. Use the criteria specified in Units 51 and 52 in your textbook.

Take your work to the instructor for his evaluation.

You have now completed all the packages for the Architectural Drafting Program. You should have a complete set of plans for a house. Some day, perhaps, you'll want to build it. You have acquired skill and you've pointed yourself in the direction of an exciting career. You have found that you can be creative. When you look at your work, be proud; it's yours. It's something you have, no one can take it from you. It didn't require much; just a lot of hard work and a lot of you. Whatever creative endeavor you may seek, apply yourself as you did on these packages, and success will ever be yours. For sure.

Now you may have the opportunity to ~~a~~ enjoy yourself a brief period of relaxation.

## DOOR SCHEDULE

| MARK | SIZE | DESCRIPTION | NO. REQ. |
|---|---|---|---|
| 1 | 3'0" x 6'-8" x 1 3/4" | EXT. RAISED PANEL - GLAZED | 1 |
| 2 | 3-0" x 6'-8" x 1 3/4" | EXT. FLUSH TYPE | 1 |
| 3 | 2'-8" x 6'-8" x 1 3/4" | EXT. FLUSH TYPE GLAZED | 1 |
| 4 | 2'-8" x 6'-8" x 1 3/8" | INT. FLUSH TYPE | 6 |
| 5 | 2'-4" x 6'-8" x 1 3/8" | " " " | 4 |
| 6 | 5'-0" x 6'-8" x 1" | LOUVERED BIFOLD | 3 |
| 7 | 3/4" FIR PLYWOOD | JOB MADE | 3 |
| 8 | 3'-0" x 6'-8" x 1" | AL COMBINATION STORM-SCREEN | 2 |
| | " " " | " " " | 1 |

## WINDOW SCHEDULE

| MARK | SIZE | | DESCRIPTION | NO. REQ. |
|---|---|---|---|---|
| | WIDTH | HEIGHT | | |
| A | 2'-8" | 4'-5" | WOOD D.H. | 4 |
| B | 2'-0" | 4'-6" | TWIN WD. D.H. | 1 |
| C | 2'-0" | 4'-6" | TRIPLE WD. D.H. | 2 |
| D | 2'-4" | 1'-2" | SING. " " | 1 |
| E | 2'-0" | 3'-10" | " " " | 1 |
| F | 3'-0" | 3'-2" | " " " | 1 |